

THE PHILIPPINE JOURNAL OF SCIENCE

VOL. 37

OCTOBER, 1928

No. 2

NEW PHILIPPINE PLANTS

By EDUARDO QUISUMBING¹

Botanist, Bureau of Science, Manila

and

ELMER D. MERRILL

Of the University of California, Berkeley

FOUR PLATES

In the following contribution one new genus and seventy-two new species, representing thirty-two families, from recent collections made in various parts of the Philippines, are described. The genus *Alseodaphne*, of the Lauraceæ, is credited to the Philippines for the first time as well as the following three species, the first of which was originally described from Borneo: *Ixora tenelliflora* Merrill, *Boehmeria malabarica* (Wallich) Weddell, and *Torenia cordifolia* Roxburgh. A few notes on nomenclature are included, especially in the Tiliaceæ.

Unless otherwise indicated in the text, the actual types of the new species described are deposited in the Bureau of Science herbarium, Manila, with isotypes in the herbarium of the University of California. In a few cases the types are in the University of California herbarium, with isotypes in the Bureau of Science. As far as additional duplicates are available, material

¹ This investigation was carried out at the University of California under a National Research Council Fellowship in the Biological Sciences 1926-1928, and while on leave as Assistant Professor of Plant Physiology, College of Agriculture, University of the Philippines.

will be sent to several of the larger European and American herbaria. The drawings were made by the senior author.

PANDANACEÆ

Genus PANDANUS Linnæus

PANDANUS NOBILIS sp. nov. § Keura. Plate 1.

Frutex 2 ad 4 m altus, ramosus; foliis 2 ad 3 m longis, 8.5 ad 12 cm latis, rigidis, longe attenuatis, supra nitidis, subtus glaucis, margine spinulosis, costa subtus denticulata, nervis lateralibus supra in partibus superioribus denticulatis; syncarpiis solitariis, ellipsoideis, pendulis, circiter 27 cm longis, 16 cm diametro; drupis numerosis, 8- ad 12-locellatis, oblongis vel oblongo-obovoideis, 5 ad 6.5 cm longis, 3.2 ad 5 cm diametro, hexagonis, truncatis, loculis irregulariter dispositis, subpyramidalis, sulcis interocularibus haud profundis; stigmatibus erectis, suborbicularibus ad reniformibus, 1 ad 2.5 mm diametro.

A shrub or small tree, 2 to 4 m high, the stem about 10 cm in diameter with 5 or 6 branches. Leaves 2 to 3 m long, 8.5 to 12 cm wide, rigid, long attenuate, shining above, glaucous beneath, the marginal spines very numerous, the midrib spiny on the lower surface, the spines becoming more numerous toward the apex, the lateral nerves at the apex on the upper surface denticulate. Syncarps ellipsoid, about 27 cm long, 16 cm in diameter, solitary, pendulous, their peduncles up to 60 cm long, stout, up to 4 cm in diameter below. Drupes numerous, oblong or oblong-obovoid, red when fresh, 5 to 6.5 cm long, 3.2 to 5 cm in diameter, the free portions 6-angled, the apex truncate, locules irregularly disposed, their tips somewhat pyramidal, the furrows between the locules shallow; stigmas erect, suborbicular to reniform, 1 to 2.5 mm in diameter.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45568 *Ramos and Edaña* (type), May 5, 1925, along streams in damp forests at low altitudes: Isabela Province, San Mariano, *Bur. Sci.* 46752 *Ramos and Edaña*, March, 1926, along forested streams, altitude about 400 meters.

A species belonging in the group with *Pandanus exaltatus* Blanco, differing in its larger drupes and much larger syncarps.

PANDANUS UMBONATUS sp. nov. § Vinsonia.

Frutex erectus, parce ramosus; foliis 1.65 ad 2.2 m longis, 3 ad 5.6 cm latis, rigidis, crasse coriaceis, pallidis, sursum angustatis, acutis, vix acuminatis, margine spinulosis, subtus glaucis;

syncarpiis 2 ad 4, ellipsoideis ad subglobosis, racemose dispositis, 7.5 ad 11.7 cm longis, 6.5 ad 8.5 cm diametro, sessilibus vel breviter pedunculatis; drupis 20 ad 30, obovoideis vel oblongo-obovoideis, 3.1 ad 4.3 cm longis, 2 ad 2.8 cm diametro, 5- vel 6-gonis, 5- ad 8-locellatis, apice perspicue umbonatis, umbo 6 ad 10 mm diametro.

An erect shrub, the stem 3 to 4 cm in diameter, with few, usually 2 or 3, branches. Leaves 1.65 to 2.2 m long, 3 to 5.6 cm wide, rigid, thickly coriaceous, pale when dry, glaucous beneath, narrowed upward, acute, scarcely acuminate, marginal spines somewhat distant, ascending, the midrib spines on the lower surface prominent, recurved. Infructescence terminal, pedunculate, the peduncle 23 to 29 cm long, 3-angled. Syncarps 2 to 4, ellipsoid to subglobose, 7.5 to 11.7 cm long, 6.5 to 8.5 cm in diameter, sessile or peduncled, the peduncles up to 2.5 cm long. Drupes 20 to 30 in each syncarp, 5- to 8-celled, obovoid or oblongo-obovoid, 3.1 to 4.3 cm long, 2 to 2.8 cm in diameter, the upper one-half free, narrowed below, apex prominently umbonate, the umbo 6 to 10 mm in diameter, 5- or 6-angled, the locules irregularly disposed, the apical furrows shallow and usually not conspicuous; stigmas sessile, plane, orbicular to somewhat reniform, 0.75 to 1.5 mm in diameter.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 46967 (type), 46998 *Ramos and Edaño*, February 22, 1926, in damp forests, at 600 meters altitude; Mount Moises, *Bur. Sci.* 47347 *Ramos and Edaño*, abundant along streams in damp forests, altitude about 800 meters.

This species is characterized by its rigid glaucous leaves, its racemose syncarps, and its umbonate drupes.

GRAMINEÆ

Genus PANICUM Linnaeus

PANICUM ANCYLOTRICHUM sp. nov. Plate 2.

Subscandens, parce ramosis, saltem 1 m altis, culmis 2.5 ad 3 mm diametro, spiculis ligulisque exceptis glaber; vaginis quam internodis brevioribus; laminis lineari-lanceolatis, attenuatis, 7 ad 13.5 cm longis, 2.5 ad 7 mm latis, glabris, margine scaberulis; paniculis angustis, pauci ramosis, 7.5 ad 17.5 cm longis, ramis adscendentibus, remotis, inferioribus, usque ad 4 cm longis; spiculis anguste oblongo-ellipsoideis, acutis, circiter 3.5 mm longis, pedicellis usque ad 4 mm longis, glumis II et III pilis numerosis uncinatis instructis, I puberulis.

Culms subscandent, slender, wirelike, at least 1 m high, 2.5 to 3 mm in diameter below, few-branched, glabrous, smooth, the nodes glabrous; sheaths glabrous, shorter than the internodes; ligule small, densely ciliate; leaf blades linear-lanceolate, attenuate, 7 to 13.5 cm long, 2.5 to 7 mm wide, glabrous, the margins scaberulent. Panicles narrow, 7.5 to 17.5 cm long, the branches few, ascending, glabrous, remote, slender, the lower ones up to 4 cm long. Spikelets few, sessile and pedicelled, the pedicels up to 4 mm long, oblong-ellipsoid, acute, about 3.5 mm long; the first glume shorter than the spikelet, ovate-lanceolate, acute, puberulent, 3-nerved, about 2 mm long; the second and the third glume subequal, covered with numerous slender hooked hairs, narrow oblong-elliptic, acute, the third one 5-nerved, 3 to 3.25 mm long, the second 7-nerved, about 3.5 mm long; flowering glume glabrous, shining, narrowly oblong-ellipsoid, about 3 mm long, narrowed to the acute apex, minutely apiculate.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 49069 Ramos and Edaña, April 9, 1927, along Dawan River, in thickets and forests and in the open, at low altitudes.

A unique species totally different from all hitherto known Philippine forms, specially characterized by its second and third glumes being densely covered with slender hooked hairs, as well as by its habit. A specimen was sent to Prof. A. S. Hitchcock who reports that it represents a species not matched in the United States National Herbarium and that it appears to fall in the genus *Panicum* in the restricted sense. It differs from the other species of *Panicum* sensu strictiore in the characteristic uncinata hairs of the second and the third glume, yet from this character alone it hardly seems warranted to segregate it as a distinct generic type.

ARACEÆ

Genus SCHISMATOGLOTTIS Zollinger and Moritzi

SCHISMATOGLOTTIS CARDIOPHYLLA sp. nov.

Caudiculi hypogaei, 1.3 ad 1.6 cm diametro; foliis late cordato-ovatis, 33 ad 38 cm longis, 22 ad 24 cm latis, breviter acute acuminatis, basi profunde cordatis, lobis late rotundatis, 5.5 ad 9 cm longis, 9 ad 11.5 cm latis, supra olivaceo-viridibus, subtus pallidis, glaucescens, utrinque glabris; nervis lateralibus utrinque numerosis, perspicuis; petiolo 24 ad 39 cm longo, vaginis 16 ad 23 cm longis; inflorescentiis 7 ad 9; bracteis numerosis, 11 ad 14 cm longis, linearilanceolatis, attenuatis, acutis; pedun-

culis valde elongatis, 12 ad 15 cm longis; spathis oblongo-lanceolatis, longe acuminatis, albidis, 6 ad 7.5 cm longis; spadix stipitatis, partibus ♀ circiter 1.5 cm longis, ♂ circiter 2.1 cm longis, partibus sterilibus cylindraceis, conicis, obtusis, usque ad 1.5 cm longis; baccis 2 ad 2.25 mm longis, 1.25 ad 1.75 mm latis, oblongis, striatis, flavidis.

Stem 1.3 to 1.6 cm in diameter. Leaves broadly cordate-ovate, 33 to 38 cm long, 22 to 24 cm wide, shortly and acutely acuminate, base deeply cordate, the lobes broadly rounded, 5.5 to 9 cm long, 9 to 11.5 cm wide, olivaceous-green above, paler and glaucous beneath, glabrous on both surfaces; lateral nerves numerous on each side of the midrib, prominent; petioles 24 to 39 cm long, the sheathing parts 16 to 23 cm in length. Inflorescences 7 to 9, the bracts numerous, 11 to 14 cm long, linear-lanceolate, acutely attenuate; peduncles 12 to 15 cm long. Spathes oblong-lanceolate, long acuminate, white, 6 to 7.5 cm long. Spadix stipitate, up to 4.5 cm long, the pistillate portion up to 1.5 cm long, the staminate part contiguous to the pistillate, up to 2.1 cm long, the sterile portion cylindric, conic, blunt, up to 1.5 cm long. Fruits 2 to 2.25 mm long, 1.25 to 1.75 mm in diameter, oblong, conspicuously striate, yellowish.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45387 Ramos and Edaña, June 11, 1925, along streams in damp forests, at low altitudes.

A species in the group with *Schismatoglottis calyptrata* (Roxburgh) Zollinger and Moritz and apparently near *S. luzonensis* Engler. It differs from the latter by its smaller leaves longer spathes, longer and larger spadix, shorter stamens, and oblong staminodes. The very long sheaths are conspicuous in this species.

TACCACEÆ

Genus TACCA Forster

TACCA ELMERI Krause.

Tacca elmeri KRAUSE in Elm. Leaf. Bot. 6 (1914) 2283; MERRILL, Enum. Philip. Fl. Pl. 1 (1925) 214; LIMPRECT in Pflanzenreich 92 (1928) 25.

Tacca angustilobata MERRILL in Philip. Journ. Sci. 29 (1926) 356.

PALAWAN (*Elmer 12659, Weber 1522*). Sulu Archipelago, Jolo, *Keinkholz s. n.*; Tawitawi (*Warburg 14989*). British North Borneo, Barguey Island, *Castro and Melegrito 1398* (type of *Tacca angustilobata* Merrill) North Borneo (*Amdjah 950*).

This species is recorded chiefly in connection with the reduction of *Tacca angustilobata* Merrill, which, by comparison of descriptions, manifestly represents the same species at *Tacca elmeri* Krause.

TACCA VESICARIA Blanco.

Tacca vesicaria BLANCO, Fl. Filip. (1837) 261.

Tacca palmata BLANCO, Fl. Filip. ed. 2 (1845) 182, ed. 3, 1 (1877) 325; MERRILL, Interpret. Herb. Amb. (1917) 145, Sp. Blancoanae (1918) 100, Enum. Philip. Fl. Pl. 1 (1923) 214, non Blume.

Tacca rumphii SCHAUER in Nov. Act. Acad. Nat. Cur. 19 Suppl. 1 (1843) 442; LIMPRECT in Pflanzenreich 92 (1928) 24.

Common and widely distributed in Luzon; also occurring in Celebes, Bouton, Amboina, and the Palau Islands.

Limprecht,¹ in his recent monographic treatment of this group, considers that *Tacca palmata* Blume is distinct from *T. rumphii* Schauer, confining the former to Java, Sumatra, and Nusa Kambangan, with a variety (*borneensis*) in Borneo. In this he is doubtless correct, but we cannot agree with him as to the specific name of the Philippine form, as he retains Schauer's *Tacca rumphii* of 1843, although Blanco's *T. vesicaria* antedates it by six years. Under all rules of nomenclature Blanco's specific name stands.

The form from Panay and the Calamian Islands (Coron) distributed by Merrill as *Tacca palmata* Blume, Limprecht² refers to *Tacca fatsiifolia* Warburg, a species otherwise known only from Celebes.

ZINGIBERACEÆ

Genus *LANGUAS* Koenig

LANGUAS PENDULA sp. nov. subgenus *Probelocalyx*.

Herba erecta; foliis chartaceis, breviter (usque ad 8 mm) petiolatis, oblongis, usque ad 52 cm longis, 15 cm latis, glabris, margine ciliatis, acute acuminatis, basi late acutis; ligula obtusa, biloba, circiter 6 mm longa, dense ciliata; racemis terminalibus, pendulis, laxis, multifloris, usque ad 35 cm longis; bracteis minutis, acutis, 1 ad 3 mm longis; rachis densissime pilosis; floribus fasciculatis, fasciculis remotis, pedicellis usque ad 22 mm longis; calycibus tubulosis, spathaceis, dense minute puberulis, 10.5 ad 11.5 mm longis, 4 ad 4.5 mm diametro, inaequaliter 3-lobatis, lobis 2 ad 4 mm longis; corollae tubo 9 ad 10 mm longo, extus

¹ Taccaceae. Pflanzenreich 92 (1928) 1-32, figs. 1-5.

² Op. cit. 23.

glabro, lobis extus minute puberulis, oblongis, obtusis, usque ad 10 mm longis, 4.5 mm latis, labellum obovatum, breviter bilobatum, margine dentatum, usque ad 8 mm longum, 6 mm latum; antheris planis, connectivi appendicula 0; ovarium glabrum; fructibus globosis, glabris, circiter 1.8 cm diametro.

An erect herb about 2 m high. Leaves chartaceous, shortly (5 to 8 mm) petiolate, oblong, 19 to 52 cm long, 6 to 15 cm wide, acutely acuminate, the base broadly acute, glabrous and almost gray on both surfaces, somewhat shining above, more or less glaucous beneath, margins ciliate; ligules coriaceous, obtuse, bilobed, about 6 mm long, densely ciliate. Racemes terminal, pendulous, lax, many-flowered, the flowering portion about 35 cm long, the peduncles 8.5 to 11.5 cm long; rachis very densely pilose; bracts minute, acute, 1 to 3 mm long. Flowers white, in rather remote 4- to 8-flowered fascicles, the pedicels up to 22 mm long, the upper ones shorter, about 5 mm long. Calyx tubular, spathaceous, densely and minutely puberulent outside, 10.5 to 11.5 mm long, 4 to 4.5 mm in diameter, unequally 3-lobed, the lobes triangular, acute, 2 to 4 mm long. Corolla exerted from the base of the calyx, glandular and glabrous inside, the tube 9 to 10 mm long, glabrous outside, the lobes oblong, obtuse, 7 to 10 mm long, 2 to 4.5 mm wide, minutely puberulent outside, the labellum obovate, recurved, shortly 2-lobed, the margins dentate, 7 to 8 mm long, 5 to 6 mm wide. Stamens 6 to 7 mm long; anthers plane, about 5 mm long, the cells minutely puberulent, the connective at the apex not enlarged. Ovary glabrous, globose; stigma obconic, ciliate. Fruits glabrous, globose, about 1.8 cm in diameter.

BOHOL, Sevilla, *Bur. Sci.* 43328 *Ramos* (type in the herbarium of the University of California), September 17, 1923, in thickets, altitude about 300 meters; Bilar, *Bur. Sci.* 43174 *Ramos*, September 9, 1923, in damp forests, altitude about 700 meters.

A species belonging in the group with *Alpinia orthostachys* K. Schumann, of Celebes, differing in its larger, broad, oblong leaves, large pendulous inflorescences, and its long pedicellate flowers.

LANGUAS SCORPOIDEA sp. nov. subgenus *Dierama* Alpinia.

Herba erecta, circiter 2 m alta; foliis chartaceis, sessilibus, lanceolatis, 22 ad 34 cm longis, 2 ad 3.3 cm latis, utrinque glabris, apice attenuatis, acutis, basi rotundatis; ligula rotundata, circiter 1 mm longa; paniculis pedunculatis, terminalibus, scorpoideis, 11.5 ad 21.5 cm longis, cincinnis 3 ad 5, alternatim dispositis.

tis, spicatis, sessilibus, scorpoideis, densis, 6 ad 12.5 cm longis, multifloris; bracteis bracteolisque persistentibus, perspicuis, apice ciliatis, bracteis cucullatis, lanceolatis, 2.5 ad 3.5 cm longis, bracteolis imbricatis, 1.5 ad 2.5 cm longis; floribus pedicellatis, campanulatis, 4 ad 4.5 cm longis, pedicellis pubescentibus, 2 ad 2.3 cm longis; calycibus tubulosis, spathaceis, 1.8 ad 2.2 cm longis, apice 2- vel 3-lobatis, lobis acutis, 4 ad 5 mm longis; corolla exerta, roseo-alba, tubo 1.5 ad 2 cm longo, lobis inaequalibus, majoribus late ovatis, rotundatis, usque ad 1.9 cm longis, 1.6 cm latis, lateralibus ovatis, obtusis, usque ad 1.8 cm longis, 1.3 cm latis; antheris oblongis, molliter pilosis, 1 ad 1.2 cm longis, connectivo breviter appendiculato, 1 mm longo; fructibus glabris, oblongo-obovoideis, usque ad 4 cm longis, 2.2 cm diametro.

An erect herb about 2 m high, the stems including the sheaths less than 1 cm in diameter. Leaves chartaceous, alternate, lanceolate, sessile, 22 to 34 cm long, 2 to 3.3 cm wide, the upper ones 12.5 cm long, 1.5 cm wide, narrowed to the slender acute apex, the base rounded, glabrous and shining on both surfaces, pale olivaceous-gray above, paler beneath; ligules chartaceous, rounded, about 1 mm long. Inflorescences terminal, pedunculate, scorpid, 11.5 to 21.5 cm long; the cincinnæ 3 to 5, alternately arranged on the rachis, sessile, cylindric, dense, scorpid, spicate, 6 to 12.5 cm long; bracts and bracteoles conspicuous, persistent, cucullate, lanceolate, glabrous except the pubescent tips, the bracts 2.5 to 3.5 cm long, the bracteoles 1.5 to 2.5 cm long; the pedicels densely black-pubescent, 2 to 2.3 cm long. Flowers numerous and crowded on the cincinnæ, campanulate, pinkish white, 4 to 4.5 cm long. Calyx in bud cylindric, lanceolate, acute, in anthesis tubular, spathaceous, 1.8 to 2.2 cm long, when spread about 1.5 cm wide at the middle, split about one-half to the base, the apex with 2 or 3 subequal acute teeth, 4 to 5 mm long, glabrous except the pubescent tips, 20- to 22-nerved. Corolla exerted, the tube 1.5 to 2 cm long, glabrous throughout except near the lobes, cylindric, somewhat enlarged upward and nearly 4 mm wide at the apex; the lobes unequal, sparsely and minutely puberulent outside, glabrous inside, the central one broadly ovate, rounded, 1.8 to 1.9 cm long, 1.3 to 1.6 cm. wide, the lateral ones ovate, obtuse, 1.7 to 1.8 cm long, 1 to 1.3 cm wide. Filaments stout, very much shorter than the anthers; anthers oblong, softly pilose, 1 to 1.2 cm long, 3.5 to 4 mm wide at the apex, the connective slightly crested, 1 mm long. Staminodes triangular, acute, densely and minutely puberulent,

about 2 mm long. Ovary sparsely puberulent, oblong-obovoid, 3-celled, 7 to 9 mm long, 3 to 3.5 mm in diameter; style filiform, softly pilose, 2.5 to 2.6 cm long; stigma clavate, pubescent. Fruit oblong-obovoid, somewhat angled, up to 4 cm long, 2.2 cm in diameter, glabrous. Seeds numerous, light reddish brown, smooth, with several faces, 3.5 to 4 mm long, about 3 mm in diameter.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 48947 Ramos and Edaña, April 16, 1927, along streams in forests at low altitudes.

This species belongs in the subgenus *Dieralmalpinia* but we are uncertain to which of the described sections of Schumacher it belongs. It is characterized by its scorpioid many-flowered inflorescences and its long, cylindric, dense spicate, sessile, conspicuously bracteate cincinnæ.

MORACEÆ

Genus FICUS Tournefort

FICUS CASIGURANENSIS sp. nov. f. Covellia.

Arbor parva, circiter 5 m alta; ramulis dense hirsutis; foliis alternis, oblongo-obovatis, usque 29 cm longis, 14 cm latis, supra scaberrimis, subtus plus minusve hispidis, acuminatis, basi cordatis; petiolis usque 7 cm longis; receptaculis in ramis specialibus elongatis caulinis saltem 40 cm longis dispositis; receptaculis pedicellatis, fasciculatis, vel in ramulis brevibus dispositis, obovoideis, 1.2 ad 1.6 cm longis, extus dense ciliato-hirsutis.

A small tree, about 5 m high; the branchlets densely hirsute, with stiff, brown, long, straight hairs, terete or slightly angled, about 7 mm in diameter. Leaves alternate, long petiolate, equilateral, oblong-obovate, chartaceous, olivaceous, dull, 19 to 29 cm long, 10 to 14 cm wide, scabrous on both surfaces, especially on the upper, the midrib and nerves on both surfaces hirsute or hispid, shortly acuminate, base cordate, margins rather finely serrulate, lateral nerves 9 or 10 on each side of the midrib, prominent, reticulations distinct; petioles densely hirsute, 3.5 to 7 cm long; stipules lanceolate, acutely acuminate, chartaceous, cinereous, densely hirtellous except on the back below, 1.5 to 2 cm long. Inflorescence from the trunk, simple, either pendulous or spreading on the ground from the base of the tree, sometimes emitting rootlets, at least 40 cm long and probably much longer, the rachis 6 to 8 mm in diameter, rugose, nearly glabrous. Receptacles fascicled at the nodes or on stout lateral branches, 2 to 3 cm in length, obovoid, pedicellate, 1.2 to 1.6 cm long,

covered with dense, brown, stiff hairs; pedicels up to 7 mm long, densely hirsute, bracts 3 at the base of the receptacle, ovate, acute, about 3 mm long. Inside of the receptacle somewhat ciliate. Fertile female flowers pedicelled, their perianth segments probably abortive or early deciduous; pedicels about 1.5 mm in length, slightly ciliate at the base; ovary obovoid, about 0.5 mm in diameter; styles 0.75 to 1 mm in length.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45343 Ramos and Edaño, May 12, 1925, along streams in forests, at low altitudes.

A species belonging in the group with *Ficus kalingaensis* Merrill, but more pubescent, with cordate leaves and larger, densely hirsute receptacles.

URTICACEÆ

Genus BOEHMERIA Jacquin

BOEHMERIA MALABARICA (Wallich) Weddell.

Boehmeria malabarica (Wallich) WEDDELL in Arch. Mus. Hist. Nat. Paris 8 (1855-56) 355; DE CONDOLLE, Prodr. 16 (1869) 203; F.-VILLAR, Novis. App. (1880) 204.

Urtica malabarica WALLICH, Cat. No. 4610.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 48938 Ramos and Edaño, April 15, 1927; Mayo (Bugak), *Bur. Sci.* 49516 Ramos and Edaño, May 23, 1927, along forested streams at low altitudes.

A species previously reported from the Philippines by Fernandez-Villar. It is doubtful whether or not he really had this form, and for this reason the species was not admitted as a Philippine one in Merrill's Enumeration of Philippine Flowering Plants 2 (1923) 91. India to Ceylon and Java.

Genus ELATOSTEMA Forster

ELATOSTEMA BOHOLENSIS sp. nov.

Herba dioica, caulis deorsum prostratis, hirtellis, angulatis, haud vel parce ramosis; foliis subsessilibus, membranaceis, linearis, 2.7 ad 5.7 cm longis, 0.4 ad 0.7 cm latis, subtus in siccitate fuscis, ad costa nervisque hirtellis, supra olivaceis, cystolithis numerosis instructis, apice attenuatis, subacutis, basi inaequaliteris uno latere anguste rotundatis altero auriculatis, margine undulatis; receptaculis ♀ sessilibus, solitariis, 3 ad 5.5 mm diametro.

Stems simple or sparingly branched, prostrate below, 26 to 37 cm long, the younger ones especially densely hirtellous, slen-

der, 1 to 2 mm in diameter, somewhat angled. Leaves subsessile, membranaceous, narrowly linear, 2.7 to 5.7 cm long, 0.4 to 0.7 cm wide, apex subacute, base inequilateral, narrowly rounded on one side, auriculate on the other, margins undulate, the upper surface olivaceous, supplied with numerous cystoliths, glabrous, the lower surface brown, densely hirtellous on the costa and nerves; lateral nerves somewhat prominent, distant, spreading at right angles, 12 to 20 on each side of the midrib; petioles very short, 1 to 2 mm long; stipules membranaceous, linear, acuminate, 3 to 3.5 mm in length. Pistillate receptacles sessile, solitary, 3 to 5.5 mm in diameter, the outer pairs of bracts fused in the basal half or free only near their apices, oblong, subpellucid, 3 to 3.25 mm long, the next pair of bracts triangular-ovate, acute, ciliate on the back and on the margin, 1.5 to 2.5 mm long; bracteoles lanceolate, acute, about 2 mm long, ciliate; flowers very shortly pedicellate, perianth lobes 3, very minute; achene oblong, about 0.5 mm in length.

BOHOL, Valencia, *Bur. Sci. 43093 Ramos*, (type in the herbarium of the University of California; isotype in the herbarium of the Bureau of Science, Manila), October 3, 1923, in damp forests, altitude about 600 meters.

The species has considerable resemblance to *Elatostema angustatum* Merrill, but differs in its pubescent stem, in its leaves with auriculate bases, the margins undulate, not serrate, and with numerous cystoliths on the upper surface.

OLACACEÆ

Genus ERYTHROPALUM Blume

ERYTHROPALUM TRIANDRUM sp. nov.

Frutex scandens, inflorescentiis parce pubescentibus exceptis glaber; foliis ovatis ad oblongo-ovatis, chartaceis ad subcoriaceis, usque ad 16.5 cm longis, 9 cm latis, acute acuminatis, basi subacutis ad subcordatis, supra nitidis; inflorescentiis laxis, usque ad 35 cm longis; bracteis subulatis, circiter 1 mm longis, bracteolis minutis; floribus dioiceis, 6 ad 7 mm longis, pedicellis minute puberulis; calycibus glabris, obscure 4- vel 5-denticulatis, 3 ad 3.5 mm longis; corolla glabra, profunde 5-lobata, lobis oblongo-lanceolatis, acutis, 5 ad 6.5 mm longis; staminibus 3, antheris oblongis, circiter 3 mm longis; filamentis circiter 1.5 mm longis; staminoideis 0.

A scandent shrub, the branches subterete, glabrous, canaliculate, about 2 mm in diameter. Leaves ovate to oblong-ovate,

chartaceous to subcoriaceous, 9 to 16.5 cm long, 4 to 9 cm wide, narrowed to the acutely acuminate apex, the base subacute to subcordate, the younger ones pale reddish brown, the older ones straw-colored, glabrous on both surfaces, shining on the upper surface, nerves 5 to 7 on each side of the midrib, the lower ones originating from the base of the midrib, prominent, ascending; petioles 1.5 to 2 cm long; tendrils bifid. Inflorescence axillary, lax, many-flowered, up to 37 cm long, the peduncle 2.5 to 6.5 cm long, glabrous; branchlets minutely puberulent; bracts subulate, about 1 mm long. Flowers apparently diœcious, pale brown, 6 to 7 mm long; bracteoles minute; the pedicels minutely puberulent, slender, 1.5 to 4 mm long. Calyx glabrous, obconic, obscurely 4- or 5-toothed, 3 to 3.5 mm long, 5 to 6 mm in diameter. Corolla glabrous, deeply 5-parted, the lobes erect, fleshy, oblong-lanceolate, acute, 5 to 6.5 mm long. Stamens 3; anthers oblong, about 3 mm long, 1.5 to 1.75 mm in diameter; filaments flattened, about 1.5 mm long, glabrous. Staminodes 0.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 49096 Ramos and Edaña, March 26, 1927, along forested streams at low altitudes.

This unique species has the vegetative characters of *Erythropalum scandens* Blume but transcends the limits of the genus as at present defined in its floral characters. It is strongly characterized by the presence of three stamens only and the absence of staminodes. It may perhaps represent a new generic type near *Erythropalum*, but in the absence of female flowers it has been thought best to place it here.

MYRISTICACEÆ

Genus KNEMA Lourciro

KNEMA CENABREI sp. nov. Plate 3.

Arbor circiter 16 m alta, ramulis dense breviter ferrugineo-pubescentibus, ramis glabris vel subglabris; foliis oblongis, subcoriaceis, 15 ad 24 cm longis, 3 ad 6 cm latis, apice acuminatis, basi plerumque rotundatis, supra glabris, nitidis, olivaceis, subtus glaucis, glabris vel junioribus deorsum ad costa nervisque decidue ferrugineo-pubescentibus, nervis utrinque 21 ad 28; floribus ♂ numerosis, fasciculatis, axillaribus et in axillis defoliatis, 4 ad 6 mm diametro, extus dense ferrugineo-pubescentibus, intus glabris, pedicellis quam floribus duplo longioribus; disco stamineo unbonato, sessile, circiter 2 ad 3 mm diametro; antheris 12 ad 16 ferentibus.

A tree about 16 m high, the branches glabrous, pale brown, terete, about 4 mm in diameter, the branchlets densely ferruginous-pubescent, 2 to 3 mm thick. Leaves oblong, subcoriaceous, 15 to 24 cm long, 3 to 6 cm wide, acuminate, base mostly rounded, the upper surface olivaceous, shining, glabrous, the lower surface brownish, glaucous, glabrous, or the midrib in the lower part and the lower nerves more or less pubescent with ferruginous deciduous hairs; lateral nerves 21 to 28 on each side of the midrib, very prominent on the lower surface, curved toward the margin, the primary reticulations slender, subparallel; petioles densely ferruginous-pubescent when young, becoming glabrous in age, 8 to 14 mm long. Staminate flowers more or less obovoid, axillary, and in the axils of fallen leaves, 8 to 14 in a fascicle, brown, 4 to 6 mm in diameter, together with the 5- to 9-mm-long pedicels, densely ferruginous-pubescent; perianth lobes orbiculate-ovate, inflexed, about 3 mm long, pubescent without, glabrous within; staminal disk sessile, umbonate, 2 to 3 mm in diameter, bearing from 12 to 16 0.5-mm-long anthers radiating from the margin.

PALAWAN, Dumaran Island, *For. Bur.* 29973 *Cenabre*, July 28, 1925, in damp forests at low altitudes, along Linuatan Creek; local name, *dago manok* (Cuy.).

A species apparently most closely allied to the Bornean *Knema korthalsii* Warburg, from which it is distinguished by its umbonate staminal disk and in its more-numerous stamens.

MONIMIACEÆ

Genus MATTHAEA Blume

MATTHAEA HETEROPHYLLA sp. nov.

Frutex glaber; ramulis laevis; foliis oblongo-ellipticis ad oblongo-lanceolatis, 9 ad 16 cm longis, 2.4 ad 4.5 cm latis, acute acuminatis, basi acutis, subcoriaceis, integris, utrinque glabris nitidisque; nervis lateralibus utrinque 8 ad 10; infructescentiis terminalibus, pedunculatis, pedunculis 1.8 ad 2 cm longis, subglabris ad sparse pubescentibus; receptaculis coriaceis, pubescentibus; drupis ellipsoideis, nitidis, nigris, glabris vel parvissime pubescentibus, 1.8 ad 2.2 cm longis, 1 ad 1.6 cm diametro; pedicellis glabris vel parvissime pubescentibus, 0.8 ad 1.3 cm longis.

A shrub, the branches terete, pale, glabrous, the branchlets glabrous or the ultimate ones sparingly pubescent with short

yellowish white hairs. Leaves elliptic-oblong to oblong-lanceolate, opposite, 9 to 16 cm long, 2.4 to 4.5 cm wide, acutely acuminate, base acute, subcoriaceous, entire, glabrous except the very young leaves which are very sparsely pubescent on both surfaces with short, scattered, yellowish white hairs, shining on both surfaces, pale olivaceous above, light brown beneath; lateral nerves 8 to 10 on each side of the midrib, obscure above, distinct beneath, spreading, uniting directly with the arched marginal nerves; petioles 1.3 to 2 cm long. Infructescence terminal, pedunculate; the peduncles 1.8 to 2 cm long, subglabrous to very sparsely pubescent; receptacles coriaceous, pubescent with yellowish hairs, 0.9 to 1.1 cm in diameter. Drupes ellipsoid, shining, black, glabrous, or near the base sparsely pubescent, 1.8 to 2.2 cm long, 1 to 1.6 cm in diameter; pedicels glabrous or very sparsely pubescent, 0.8 to 1.3 cm long.

LUZON, Isabela Province, Mount Moises, *Bur. Sci. 47318 Ramos and Edaño*, March 3, 1926, on forested slopes, altitude about 1,200 meters.

This characteristic species is manifestly allied to *Matthaea ellipsoidea* Merrill, from which it is distinguished by its entire leaves, pubescent ultimate branchlets and very young leaves, smaller drupes, longer pedicels, and pubescent receptacles.

Bur. Sci. 47089 Ramos and Edaño from San Mariano, Isabela Province, Luzon, probably represents a form of the same species, differing in its larger leaves, 17 to 31 by 4.5 to 6.5 cm, and axillary infructescences.

LAURACEÆ

Genus ALSEODAPHNE Nees

ALSEODAPHNE LONGIPES sp. nov.

Arbor parva, usque ad 8 m alta, glabra, ramis teretibus, pallidis; foliis crasse coriaceis, pseudovercillatim confertis, oblanceolatis ad oblongo-ellipticis vel oblongo-obovatis, obtusis ad acuminatis, basi acutis, supra nitidis, subtus glaucis, 10.5 ad 24 cm longis, 3 ad 7 cm latis, nervis lateralibus utrinque 10 ad 14, subtus valde perspicuis, utrinque subfoveolato-reticulatis; petiolo 1 ad 2.5 cm longo; inflorescentiis 9 ad 14.5 cm longis, pedunculatis; floribus paucis, subumbellatis, 3 ad 3.5 mm longis; segmentis extus glabris, intus pubescentibus; staminoideis 3, pubescentibus, 1 ad 1.25 mm longis; ovario globoso, glabro; fructibus globosis ad obovoideo-globosis, glabris, 1.5 ad 2 cm longis, 1.6 ad 2.5 cm diametro, pedicellis sub fructu incrassatis, verrucosis, 2 ad 4.5 cm longis.

A small tree, up to 8 m high, glabrous throughout except the flower parts, the branches terete, pale. Leaves pseudovercillately crowded at the top, thickly coriaceous, oblanceolate to oblong-elliptic or oblong-obovate, obtuse to acuminate, base acute, when dry shining and light brown above, glaucous beneath, 10.5 to 24 cm long, 3 to 7 cm wide; lateral nerves 10 to 14 on each side of the midrib, very prominent beneath, impressed above, both surfaces rather densely subfoveolate-reticulate; petioles thick, 1 to 2.5 cm long, sulcate above. Panicles in the upper axils, 9 to 14.5 cm long, glabrous; their peduncles 5 to 8.5 cm long. Flowers few, creamy yellow, odorless, subumbellate, 3 to 3.5 mm long, the pedicels slender, 4.5 to 5 mm long, glabrous; perianth segments 6, equal, or the outer ones smaller, glabrous outside, pubescent inside, the three outer ones ovate, 1.75 to 2 mm long, 1 to 1.3 mm wide, the three inner ones oblong-ovate to ovate-lanceolate, 2.5 to 3 mm long, 1 to 1.25 mm wide; stamens 9, perfect, in three rows, six of the outer two rows 1.5 to 2.1 mm long, eglandular, introrse, three of the innermost row, 1.75 to 2.25 mm long, glandular, extrorse, the 2 basal glands, minute, 0.5 to 1 mm long; anthers 4-celled; filaments longer than the anthers, pubescent at the base; staminodes 3, prominent, pubescent, 1 to 1.25 mm long, about 0.8 mm in diameter, stipitate, ovate; ovary globose, glabrous. Drupe red when fresh, dark brown to black when dry, globose to obovoid-globose, 1.5 to 2 cm long, 1.6 to 2.5 cm in diameter, their pedicels thickened, reddish brown, verrucose, 2 to 4.5 cm long, 0.5 to 0.8 cm in diameter when dry, the perianth segments early deciduous.

MINDANAO, Agusan Province, Urdaneta, Cabadbaran, *Elmer 13962* (type), 13400, October, 1912, on steep slopes, altitude about 1,000 meters, known locally as *magyan-tawan* (Mbo.). LUZON, Isabela Province, Mount Moises, *Bur. Sci. 47317 Ramos and Edaña*, March 4, 1926, *Clemens 16900*, April, 1926, along forested streams, altitude about 970 meters: Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci. 45630 Ramos and Edaña*, May 21, 1925, on forested slopes, altitude about 1,700 meters: Caraballo Mountains, *Loher 13756*, March, 1915: Benguet Sub-province, Tanit, *For. Bur. 29387 Lizardo*, August 18, 1923.

The genus, which extends from southeastern China, Borneo, Java, and the Malay Peninsula to Ceylon, is new to the Philippines. This well-marked species may be placed near *Alseodaphne insignis* Gamble, but differs in its vegetative and fruit characters. Elmer's specimens were erroneously distributed as *Persea philippinensis* Merrill.

Genus CINNAMOMUM Blume

CINNAMOMUM MICROPHYLLUM sp. nov. § Malubathrum.

Arbor parva, ramulis et foliis junioribus et inflorescentiis dense molliter griseo-pubescentibus; foliis numerosis, confertis, coriaceis, oblongo-ellipticis, 2.5 ad 5 cm longis, 0.8 ad 1.8 cm latis, supra nitidis, obtuse acuminatis, basi acutis, 3-plinerviis; paniculis paucifloris, axillaribus, 3.5 ad 5 cm longis; floribus pedicellatis, 3 ad 4 mm longis; staminibus 2 ad 2.25 mm longis, filamentis quam antheris duplo longioribus, pubescentibus; staminoideis stipitatis, pubescentibus, 1 ad 1.5 mm longis; ovario glabro, obovoideo.

A small tree, the younger branchlets, the lower surface of the leaves and inflorescences densely and softly cinereous-pubescent, the very old leaves glabrous on both surfaces, the young ones more or less pubescent above; branches terete, glabrous, somewhat rugose, 4 to 6 mm in diameter. Leaves small, numerous, crowded on the branchlets, coriaceous, oblong-elliptic, 2.5 to 5 cm long, 0.8 to 1.8 cm wide, obtusely acuminate, base acute, the upper surface smooth and shining, the lower rather dull, base 3-plinerved, the nerves very prominent on the lower surface, not prominent on the upper surface; petioles 3 to 6 mm long, densely pubescent when young, in age glabrous. Panicles axillary, 3.5 to 5 cm long, few-flowered, rather densely and softly gray-pubescent, their peduncles very slender, 2.4 to 3.5 cm long; flowers pedicellate, 3 to 4 mm long, 3.25 to 3.5 mm in diameter; externally very densely pubescent; perianth lobes oblong-obovate, subacute, 2.5 to 2.75 mm long, 1.5 to 1.75 mm wide; stamens 2 to 2.25 mm long; filaments densely pubescent, twice as long as the ovoid anthers; staminodes stipitate, oblanceolate, acute, densely pubescent, 1 to 1.5 mm long; ovary glabrous, obovoid; style 1.25 to 1.5 mm long.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45692 *Ramos and Edaño*, June 7, 1925, in the mossy forest, altitude about 1,900 meters.

A characteristic species readily recognizable by its small, crowded, pubescent, oblong-elliptic leaves, and short, few-flowered, pubescent inflorescences.

CINNAMOMUM TRICOPHYLLUM sp. nov.

Arbor parva, ramis et subtus foliis et inflorescentiis densissime molliter pubescentibus; foliis subcoriaceis, oblongo-ellipticis, 10.5 ad 21.5 cm longis, 3.5 ad 8 cm latis, supra nitidis, acute

acuminatis, basi acutis, perspicue 3-nerviis ad 3-subplinerviis; paniculis paucifloris, terminalibus, 7 ad 9.5 cm longis; floribus pedicellatis, 3.5 ad 3.75 mm longis; staminibus circiter 2 mm longis, filamentis quam antheris longioribus, pubescentibus; staminoideis stipitatis, pubescentibus, circiter 1.5 mm longis, sagittatis; ovario glabro, obovoideo; fructibus ellipsodeis, nigrescentibus, glabris, circiter 10 mm longis, 8 mm diametro, calycibus haud incrassatis, paulo accrescentibus.

A small tree, the branches, branchlets, the lower surface of the leaves, and the inflorescences very densely and softly pubescent with pale cinereous to golden-yellow hairs; branches terete, about 3.5 mm in diameter. Leaves subcoriaceous, oblong-elliptic, 10.5 to 21.5 cm long, 3.5 to 8 cm wide, acutely acuminate, base acute, the upper surface smooth, shining, pale olivaceous-brown, the lower surface of nearly the same color, base prominently 3-nerved to 3-subplinerved; petioles very densely pubescent, 6 to 9 mm long. Panicles terminal, few-flowered, 7 to 9.5 cm long, densely and softly gray to golden-yellow pubescent, their peduncles slender, 2 to 5 cm long. Flowers pedicellate, 3.5 to 3.75 mm long, 3 to 3.5 mm in diameter, the pedicels 4 to 5 mm long; perianth lobes oblong-ovate, subacute, densely pubescent on both surfaces, 2.5 to 2.75 mm long, about 1.5 mm wide. Stamens about 2 mm long, the filaments pubescent, very slender, slightly longer than the ovoid anthers; staminodes stipitate, about 1.5 mm long, sagittate, the stalk densely pubescent, very slender. Ovary glabrous, obovoid; style about 1.25 mm long. Fruits ellipsoid, rounded, black, glabrous, about 10 mm long, 8 mm in diameter; the persistent pubescent perianth never thickened and but slightly enlarged.

MINDANAO, Davao Province, Limot, *Bur. Sci.* 49530 Ramos and Edaña, May 26, 1927, on slopes in the primary forest, altitude about 700 meters.

A species resembling *Cinnamomum mollissimum* Hooker f. in its vegetative appearance, differing radically in its pubescent perianth, which is not thickened and is but slightly accrescent in fruit; differing, also, in its very slender filaments and sagittate staminodes.

HERNANDIACEÆ

Genus ILLIGERA Blume

ILLIGERA OVATIFOLIA sp. nov. ♀ Parviglandulata.

Frutex scandens, inflorescentiis exceptis glaber; ramis angulatis, laevis; ramulis striatis; foliis trifoliolatis, petiolo 6 ad 10

cm longo; foliolis 9 ad 15 cm longis, 5.5 ad 9 cm latis, ovatis vel late oblongo-ovatis, apice subabrupte acuminatis, basi rotundatis ad subcordatis, nitidis, chartaceis ad subcoriaceis, nervis lateralibus utrinque 6 vel 7, perspicuis; inflorescentiis paniculatis, laxis, pendulis, 5.5 ad 19 cm longis; floribus 4 ad 5 mm longis, pedicellis puberulis, 1 ad 2 mm longis; calycibus extus puberulis, lobis oblongis vel ovato-lanceolatis, subacutis, 3 ad 4 mm longis; petalis oblongo-ellipticis, extus glabris, intus pubescentibus, circiter 4 mm longis. Fructibus glabris, cum aliis 3.7 ad 4 cm longis, 6.8 ad 8.2 cm latis.

Scandent, the branches angled, smooth, glabrous, about 5 mm in diameter, the branchlets smooth, striate, glabrous except at the nodes, which are more or less pubescent with yellowish, soft, short hairs. Leaves 3-foliolate, their petioles glabrous, 6 to 10 cm long; leaflets 9 to 15 cm long, 5.5 to 9 cm wide, ovate or broadly oblong-ovate, subabruptly acutely to obtusely acuminate, base rounded to subcordate, glabrous and shining on both surfaces, chartaceous to subcoriaceous; lateral nerves 6 or 7 on each side of the midrib, anastomosing, prominent beneath, somewhat impressed above, the reticulations lax, prominent beneath; petiolules 1.5 to 2.7 cm long, the central one usually longer. Panicles pendulous, lax, 5.5 to 19 cm long, subglabrous, the branches scattered, 4.5 to 7.5 cm long. Flowers 4 to 5 mm long, their pedicels densely pubescent, slender, 1 to 2 mm long; bracteoles ovate-lanceolate, puberulent, 1.5 to 2.25 mm long; calyx tube about 1 mm long, pubescent, the lobes 5, oblong to ovate-lanceolate, subacute and somewhat inflexed at the apex, 3 to 4 mm long; petals 5, oblong-elliptic, subacute, yellowish green, glabrous outside, except near the apex, pubescent inside, about 4 mm long, 1.5 to 1.75 mm wide; stamens 5, equal, about 2.75 mm long, anthers erect, oblong, subobtusely, connective rather stout, about 1.75 mm long, filaments somewhat compressed, glabrous, the nectarine glands minute, sessile, subglobose, carrying on each side near the base a staminode up to 1 mm long; style filiform; stigma subpeltate, somewhat dilated, lobed. Fruits glabrous, shining, including the wings 3.7 to 4 cm long, 6.8 to 8.2 cm wide, two wings broadly rounded, the other two reduced to keels.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 46712 (type), 47166, *Ramos and Edaño*, February 24, 1926, *Clemens* 16717, August, 1926. Along streams in damp forests, altitude 300 to 600 meters.

This species is apparently allied to *Illigera pulchra* Blume, from which it may be distinguished by its very differently shaped leaves, which are ovate or broadly oblong-ovate; the oblong-elliptic, larger petals; glabrous filaments; and much larger fruits.

LEGUMINOSÆ

Genus *BAUHINIA* Linnaeus

BAUHINIA CHALCOBAPTA sp. nov. ♀ Phanera.

Frutex scandens, inflorescentiis et ramulis et subtus foliis exceptis glaber; foliis suborbiculariovatis, 5.3 ad 7.7 cm longis, 4 ad 6 cm latis, subcoriaceis, 11- ad 13-nerviis, basi cordatis, apice 2-lobatis, lobis oblongis, obtusis; floribus circiter 4.5 cm longis, pedicellis pubescentibus, 1.5 ad 2.5 cm longis; calycis tubo elongato, cylindrico, 1.3 ad 1.5 cm longo, circiter 3 mm diametro, lobis lineari-suboblanceolatis, acuminatis, 1.5 ad 2 cm longis; petalis subinaequalibus, extus cupreo-tomentosis, intus glabris, obovato-lanceolatis, obtusis, 2.7 ad 3.2 cm longis; staminibus 3; ovario styloque dense pubescenti.

A scandent shrub, the branches terete, pale, glabrous; leaves suborbicular-ovate, 5.3 to 7.7 cm long, 4 to 6 cm wide, subcoriaceous, the upper surface light brown, shining, glabrous, the lower surface paler, with very short, shining, appressed yellowish hairs, 2-lobed, the lobes oblong, obtuse, extending about one-third to the base, sinus narrow, the base slightly cordate, 11- to 13-nerved, the nerves prominent; petioles slender, pubescent, 1.5 to 2.3 cm long. Racemes terminal, densely pubescent, 4 to 7.5 cm long; flowers up to 14 in each raceme, about 4.5 cm long, greenish yellow, their pedicels pubescent, 1.5 to 2.5 cm long, the subtending bracteoles pubescent, ovate-lanceolate, up to 6 mm in length; calyx tube cylindric, slightly narrowed below, 1.3 to 1.5 cm long, about 3 mm in diameter, pubescent, the lobes 5, suboblanceolate, acuminate, pubescent externally, 1.5 to 2 cm long 3.5 to 4.25 mm wide; petals subequal in length, densely cupreo-tomentose externally, glabrous within, obovate-oblanceolate, obtuse, 2.7 to 3.2 cm long, 0.7 to 1.3 cm wide; fertile stamens 3, the anthers oblong-elliptic, 7 to 8 mm long, filaments 2.7 to 2.9 cm long, slender; ovary and style very densely pubescent with appressed short cupreous hairs.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47217 Ramos and Edaña, March 26, 1926, along streams in open forests, altitude about 650 meters.

A species apparently allied to *Bauhinia warburgii* Perkins, but with smaller leaves, pubescent petioles, and much shorter calyx tubes and lobes.

Genus *MUCUNA* Adanson

MUCUNA PLATYPLEKTA sp. nov. § *Zoophthalmum*, Citta.

Frutex scandens, perspicue pubescentibus; foliolis chartaceis, supra glabris, subtus adpresse pubescentibus, late ovatis ad elliptico-ovatis, lateralibus obliquis, 12.2 ad 15.5 cm longis, 8.5 ad 11 cm latis, breviter acuminatis, nervis lateralibus utrinque 7, perspicuis; racemis sub fructu, circiter 15 cm longis; fructibus oblongis, obtusis, circiter 12 cm longis, 6 ad 6.5 latis, 2 ad 2.5 cm crassis, ferrugineo-hirsutis, valvis profunde suboblique lamellatis, lamellis usque ad 16, 8 ad 13 mm altis, crasis, latis, rigidis, plerumque fissis, pilis rigidis urentibus instructis; seminibus plerumque 3, ellipticis, nitidis, leviter compressis, 2.4 ad 2.6 cm longis, 1.8 ad 2.2 cm latis.

A woody vine, prominently pubescent except the upper surface of the leaflets and the older branches, the branches terete, dark brown, 3.5 to 5 mm in diameter. Petioles 10 to 11.5 cm long, densely pubescent with soft, appressed, short yellowish white hairs. Leaflets chartaceous, densely clothed with appressed short yellowish white hairs beneath, the terminal leaflets broadly elliptic-ovate, very shortly blunt acuminate, base broadly acute, about 12 cm long, 8.5 to 11 cm wide, lateral nerves 7 on each side of the midrib, very prominent, reticulations somewhat obscure, petiolules 3 to 3.4 cm long, the lateral leaflets oblique, broadly ovate, base inequilateral, one side very broadly rounded, 12.5 to 15.5 cm long, 9 to 11 cm wide, petiolules 0.6 to 1 cm long. Racemes in fruit about 15 cm long including the 4-cm-long peduncle, densely pubescent with soft, appressed, short yellowish white scars, up to 22 in each inflorescence. Pods about 12 cm long, 6 to 6.5 cm wide, 2 to 2.5 cm thick, oblong, obtuse, the sutures broad, channeled, winged, the wings connected directly with the transverse lamellæ, the faces traversed by close, double, somewhat oblique, rigid plaits; the plaits broad, 8 to 13 mm deep, bearing numerous, rigid, ferruginous, stinging bristles; pedicels 2 to 2.8 cm long, the calyx, which is sometimes persistent on the mature fruits, densely pubescent on both surfaces, about 1.5 cm long, 1.5 cm in diameter, the lower teeth linear, about 5 mm long, the lateral and upper segments very short, and deltoid.

Seeds usually 3, smooth and shining, elliptic, and slightly compressed, 2.4 to 2.6 cm long, 1.8 to 2.2 cm wide, 1 to 1.2 cm thick.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47232 *Ramos and Edaño* (type), February 16, 1926, along streams at low altitudes; *Clemens* 17050, August, 1926, in dry open forests.

A species manifestly allied to *Mucuna biplicata* Teysmann and Binnendijk, differing in its pubescent leaves and larger pods, with broader plaits.

Genus RHYNCHOSIA Lourcero

RHYNCHOSIA MYRIOCARPA sp. nov. ‡ *Eurhynchosis*.

Frutex scandens, pubescente; foliolis ovatis ad late ovatis, 4 ad 10.5 cm longis, 3.5 ad 8.5 cm latis, breviter obtuse acuminatis, basi rotundatis, chartaceis, eglandulosis, stipellatis, utrinque pilosis; racemis multifloris, quam foliis longioribus, 12 ad 15 cm longis; floribus pallide violaceis, calycibus lobis acutis, inaequalibus; fructibus dense pilosis, 1.7 ad 2 cm longis.

A scandent pubescent shrub, the stems terete, canaliculate, pilose, 1.5 to 2.5 mm in diameter. Stipules lanceolate, caducous, about 5 mm long. Petioles densely pilose, slender, canaliculate, 3.5 to 6 cm long; leaflets chartaceous, eglandular, pilose on both surfaces, stipellate, short and obtusely acuminate, base rounded, the lateral ones smaller, ovate, base inequilateral, 4 to 9 cm long, 3.5 to 6 cm wide, the petiolules 3 to 4 mm long, the central ones broadly ovate, base equilateral, 5.5 to 10.5 cm long, 5 to 8.5 cm wide, long-stalked, 1.5 to 3 cm long. Racemes 12 to 15 cm long, the peduncles 1.5 to 2 cm long; bracts conspicuous, subulate, about 5 mm long. Flowers 40 to 80 on each raceme, 11 to 13 mm long, their pedicels very slender, pubescent, 4 to 5 mm long. Calyx densely pubescent, about 5 mm long, the lobes unequal, acute, up to 2 mm long. Corolla pale violet, pubescent on the outside, twice as long as the calyx. Stamens glabrous. Ovary densely pilose. Pods greenish, densely pilose, somewhat compressed, 1.7 to 2 cm long, 6 to 6.5 mm wide. Seeds 2 in each pod, black, shining, without an aril, about 4.5 mm long, 3.5 to 4 mm wide.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 48984 (type), *Ramos and Edaño*, April 17, 1927; Tambungan, *Bur. Sci.* 48972 *Ramos and Edaño*, April 31, 1927, in the open places at low altitudes.

This species is distinguished by its densely pubescent pods, long, many-flowered racemes, and its eglandular leaves.

RUTACEÆ

Genus *CLAUSENA* Burman f.*CLAUSENA LAXIFLORA* sp. nov.

Frutex 3 ad 4 m altus, vix aromaticus, glaber vel subglaber; foliis usque ad 39 cm longis, foliolis 7 ad 9, membranaceis, usque ad 16 cm longis, 6.5 cm latis, ovatis ad ellipticis, inaequilateralibus, obtusis; paniculis laxis, 30 ad 35 cm longis, leviter pubescentibus; floribus 5-meris, circiter 5 mm diametro.

A shrub 3 to 4 m high, glabrous except the slightly puberulent younger parts and the inflorescence, scarcely aromatic. Branches terete, brownish green. Leaves 26 to 39 cm long, the petioles and rachis minutely puberulent, becoming glabrous; leaflets 7 to 9, alternate, ovate to elliptic, the larger ones up to 16 cm long, 6.5 cm wide, the basal ones smallest, about 4 cm long and 2.5 cm wide, those on the upper part of the rachis larger and longer than the lower ones, membranaceous, the basal ones sometimes subchartaceous, strongly inequilateral, very shallowly and irregularly undulate-crenate, obtusely acuminate, base rounded to acute, pale olivaceous-brown to brown above, paler beneath, or of about the same color on both surfaces when dry, shining; lateral nerves 7 to 9 on each side of the midrib, prominent, distant, irregular, anastomosing, the reticulations somewhat obscure, lax; petiolules slender, 3 to 5 mm long. Panicle terminal, pyramidal, lax, 30 to 35 cm long, minutely puberulent, the lower branches 17 to 22 cm long, the upper gradually shorter. Flowers numerous, 5-merous, the pedicels minutely puberulent, about 2 mm long. Buds globose-ovoid. Bracts triangular, about 0.1 mm long. Calyx shallow, 1.5 mm in diameter, 5-lobed, the lobes broadly ovate, acute, glabrous, margins sparsely and minutely puberulent. Petals 5, imbricate, oblong, obtuse, 3.75 to 4 mm long, 2 to 2.5 mm wide, glandular, glabrous. Stamens 10, about 3 mm long; anthers oblong, apiculate, about 1.5 mm long; filaments somewhat enlarged below. Ovary globose, glabrous.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 48983 (type), 49087 *Ramos and Edaña*, April 27, 1927 and March 27, 1927, respectively, in damp forests at low altitudes.

A species characterized by its lax inflorescences and large, membranaceous leaflets.

BURSERACEÆ

Genus CANARIUM Linnaeus

CANARIUM OXYGONUM sp. nov.

Arbor parva; ramulis incrassatis, perspicue lenticellatis, glabris, circiter 2 cm diametro; foliis usque ad 50 cm longis, 6-jugis; foliolis usque ad 31 cm longis, 9.5 cm latis, coriaceis, nitidis, oblongo-ellipticis, distincte caudato-acuminatis, basi rotundatis, integris, supra glabris, subtus ad costa nervisque breviter puberulis, nervis lateralibus utrinque 16 ad 20, adcurrentibus, subtus valde perspicuis, reticulis perspicuis; infructescentiis racemosis, usque ad 17 cm longis; fructibus ovoideis, acutis, rugosis, acute 3-angulatis, circiter 4.3 cm longis, 3 cm diametro.

A small tree, the ultimate branchlets stout, prominently lenticellate, reddish brown, wrinkled when dry, about 2 cm in diameter, the very tip above the leaves, densely ferruginous-pubescent. Leaves more or less crowded toward the ends of the branchlets, up to 50 cm long, each with 18 leaflets, the rachis and petiole rather stout, shining, striate; stipules none or very early deciduous. Leaflets opposite, the lowest ones ovate and much smaller, 7 to 12 cm long, 4 to 5.5 cm wide, the intermediate and upper ones oblong-elliptic, up to 31 cm long, 9.5 cm wide, shining on both surfaces, glabrous above, sparsely puberulent on the midrib and nerves beneath, brown above, darker beneath, coriaceous, distinctly caudate-acuminate, base equilateral or inequilateral, rounded; lateral nerves of the median leaflets 16 to 20 on each side of the midrib, of the lower ones about 10, very distinct on the lower surface, ascending, curving, the reticulations prominent on both surfaces; petiolules stout, 5 to 10 mm long, in the terminal leaflet up to 5 cm long. Flowers not seen. Infructescence in the upper axils, racemose, up to 17 cm long, densely ferruginous-pubescent, the persistent calyx 3-lobed, very coriaceous, about 10 mm in diameter, densely pubescent with short hairs outside, and covered with setose hairs inside, the lobes broadly ovate; pedicels stout, short. Fruit ovoid, acute, about 4.3 cm long, 3 cm in diameter, with 3 acute angles, the pericarp apparently fleshy, slightly wrinkled, glabrous, the endocarp bony, 3-celled, somewhat obtuse at both ends, with 3 prominent acute angles, and with 3 intermediate, shallow, acute ridges which do not unite at the apex and are evanescent near the base.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45728 *Ramos and Edaña*, June 6, 1925, on forested slopes, altitude about 1,900 meters. Local name, *kagusikes* (Tag.).

A species apparently allied to *Canarium nervosum* Elmer, differing in its larger fruits with three acute angles, its puberulent leaflets, and the sculpture of the endocarp.

MELIACEÆ

Genus AGLAIA Loureiro

AGLAIA CAULOBOTREYS sp. nov. § *Eugaleia*.

Arbor parva, partibus junioribus inflorescentiisque castaneo-stellato-pubescentibus; foliis usque ad 70 cm longis, foliolis 11 ad 13, oblongis, usque ad 25 cm longis et 9 cm latis, subcoriaceis, acuminatis, basi obtusis vel rotundatis, nervis utrinque 18 ad 20, perspicuis, utrinque glabris vel costa subtus stellato-pubescentibus; paniculis caulinis, usque ad 31 cm longis; floribus minutis, in ramulis ultimis, dense confertis, glomeratis; fructibus globosis, minute castaneo-stellato-pubescentibus, 2 ad 2.5 cm diametro.

A small tree, the younger parts, inflorescences, and fruits minutely stellate-pubescent with castaneous hairs. Branches terete, the ultimate ones 7 to 10 mm in diameter. Leaves alternate, 43 to 70 cm long; leaflets 11 to 13, subcoriaceous, the lower pairs smaller than the upper ones, oblong-ovate, the others oblong, 15 to 25 cm long, 4.5 to 9 cm wide, the upper surface pale olivaceous-brown, glabrous, slightly shining, the lower surface pale brown to pale reddish brown, nearly glabrous except for the stellate-pubescent midribs and nerves, the apex abruptly acuminate, the acumen acute to obtuse, 5 to 7 mm in length, the base obtuse to rounded; lateral nerves 18 to 20 on each side of the midrib, prominent on the lower surface, becoming faint toward the margins, the reticulations lax, obscure; petiolules stout, 8 to 14 mm long. Panicles from the trunk, densely stellate-pubescent with castaneous hairs, 16 to 31 cm long, the branches few, spreading, the lower ones up to 14 cm long. Immature flowers very densely crowded on the ultimate branchlets, glomerate, about 0.75 mm in diameter, the pedicels up to 0.5 mm long. Calyx densely stellate-pubescent, 0.4 to 0.5 mm long. Petals 5, suborbicular, glabrous, rounded, about 0.3 mm long. Staminal tube glabrous, depressed-globose, truncate, free from the petals, the anthers 5, about 0.2 mm long, included. Fruits globose, rounded, densely and minutely stellate-pubescent with

castaneous hairs, 2 to 2.5 cm in diameter, with a single vertical median ridge, the pedicels stout, up to 1.4 cm long.

MINDANAO, Davao Province, Mayo, *Bur. Sci.* 49374 (type), April 24, 1927, along streams in damp forests, altitude about 700 meters; Mati, 49107 Ramos and Edaña, May 6, 1927, in damp forests along Bitanagan River, at low altitudes.

One of the few species of this large genus with cauline inflorescences, apparently falling in the group with *Aglaia trunciflora* Merrill, which is known from fruiting specimens only. It differs from the above species in its globose, minutely and densely castaneous pubescent fruits. It is further characterized by its very densely crowded flowers.

Genus DYSOXYLUM Blume

DYSOXYLUM OBLONGIFOLIOLUM sp. nov. : *Eudysoxylum*.

Arbor parva, partibus junioribus et subtus foliis et inflorescentiis molliter puberulis; foliis alternis, 45 ad 75 cm longis, foliolis 14 ad 16, vel in foliis superioribus 8 ad 10, lanceolatis vel oblongo-ellipticis, alternis vel suboppositis, acuminatis ad attenuatis, basi acutis, chartaceis, nitidis, supra glabris, vel costa puberulis, in sicco pallidis, nervis lateralibus utrinque 14 ad 18, subtus perspicuis; inflorescentiis in axillis superioribus, spiciformibus ad depauperato-paniculatis, 14.5 ad 22 cm longis, ramis paucis, usque ad 11 cm longis; floribus 4-meris, 6 ad 7.5 mm longis, breviter pedicellatis; calycibus 4-dentatis, extus puberulis, 1.5 ad 2 mm longis, 4.25 ad 4.5 mm diametro, lobis 0.5 ad 1 mm longis; petalis 4, reflexis, extus puberulis, oblongis, subacutis, 7 ad 8 mm longis, 3 ad 4 mm latis; tubo cylindrico, libero, glabro, crenulato, 6 ad 7 mm longo; antheris 8, inclusis, oblongis, subacutis, 1.25 ad 1.5 mm longis, disco cylindrico, crenulato, 2 mm longo; ovario dense pubescente.

A small tree, the branches subterete, obscurely angled, grayish, glabrous, the branchlets, inflorescences, and the upper surface of the leaflets softly olivaceous-puberulent. Leaves alternate, including the petioles 45 to 75 cm long, the petioles 19 to 30 cm long; leaflets 14 to 16, or in the uppermost leaves 8 to 10, the lower ones alternate, the upper opposite or subopposite, lanceolate to oblong-elliptic, 15 to 30 cm long, 3 to 6.3 cm wide, chartaceous, pale olivaceous when dry, shining, the upper surface glabrous except the puberulent midrib, apex acuminate, base subequilateral to more or less inequilateral, acute; lateral nerves 14 to 18 on each side of the midrib, impressed above,

prominent beneath, becoming faint toward the margins, the reticulations lax, somewhat obscure; petiolules densely puberulent, 5 to 10 mm long. Inflorescences in the upper axils, solitary, spiciform to depauperate-paniculate, 14.5 to 22 cm long, the branches few, up to 11 cm long; flowers 4-merous, shortly pedicellate, 6 to 7.5 mm long, the pedicels puberulent, slender, 1 to 1.25 mm long; calyx shallow, 4-toothed, puberulent outside, 1.5 to 2 mm long, 4.25 to 4.5 mm in diameter, the lobes triangular-ovate, 0.5 to 1 mm long; petals 4, reflexed, densely puberulent outside, oblong, subacute, 7 to 8 mm long, 3 to 4 mm wide; staminal tube cylindric, free, glabrous, crenulate, 6 to 7 mm long; anthers 8, included, oblong, subacute, 1.25 to 1.5 mm long; disk tubular, crenulate, glabrous outside, pubescent inside, about 2 mm long, 2.5 mm in diameter; ovary ovoid, densely pubescent, 4-celled; style densely pubescent, including the globose stigma 4.5 to 5 mm long. Immature fruits densely pubescent, globose, about 7 mm in diameter.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 46836, 46827 *Ramos and Edaña*, February, 1926, along streams in damp forests, at low altitudes.

The alliance of this species is manifestly with *Dysoxylum venosum* Merrill, from which it is distinguished by its longer inflorescences and much larger flowers.

EUPHORBIACEÆ

Genus ACTEPHILA Blume

ACTEPHILA MEGISTOPHYLLA sp. nov.

Frutex glaber, circiter 4 m altus; foliis permagnis, petiolatis, spathulato-oblancoelatis, chartaceis, 1.1 ad 1.6 m longis, 21 ad 25 cm latis, margine distanter calloso-dentatis vel crenatis, abrupte acute acuminatis, deorsum longe angustatis, nervis utrinque 38 ad 50, perspicuis; petiolo 2.3 ad 3 cm longo; infructescentiis 7.5 ad 13 cm longis, breviter pedunculatis; fructibus longe (4 ad 8.5 cm) pedicellatis, depresso-globosis, extus sparse pubescentibus, 3 ad 3.5 cm diametro.

A shrub about 4 m high. Leaves very large, spatulate-oblancoelate, chartaceous, 1.1 to 1.6 m long, 21 to 25 cm wide, olivaceous-green above, pale brown beneath when dry, glabrous, densely punctulate on both surfaces, margin distantly glandular-dentate or crenulate, apex abruptly acute acuminate, long,

narrowed below; lateral nerves 38 to 50 on each side of the midrib, prominent, parallel, the reticulations lax; petioles relatively short, thickened, glabrous, 2.3 to 3 cm long. Infructescence racemose, shortly peduncled, 7.5 to 13.5 cm long, the peduncles 1 to 2 cm long, covered with appressed short hairs. Capsules depressed-globose, sparingly pubescent, ultimately glabrous, 3 to 3.5 cm in diameter, very long-pedicelled, the pedicels appressed-pubescent, 4 to 8.5 cm long; persistent sepals 5, pubescent outside, margin sparsely ciliate, oblong to ovate, 4 to 6.5 mm long.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45466 Ramos and Edaña, June 2, 1925, in damp forests along streams, at low altitudes.

This species is strongly characterized by its very large leaves, whence its specific name. It probably belongs in the group with *Actephila excelsa* (Dalzell) Mueller-Arg.

Genus ANTIDESMA Burman

ANTIDESMA ACUMINATISSIMUM sp. nov. ♀ Venosa.

Frutex, partibus junioribus inflorescentiisque exceptis glaber; foliis breviter petiolatis, lanceolatis, membranaceis, 7 ad 11.5 cm longis, 1.7 ad 3 cm latis, utrinque nitidis, supra glabris, subtus ad nervis parce pubescentibus, apice longe tenuiterque caudato-acuminatis, basi acutis, nervis utrinque 7 vel 8; stipulis linearis, pubescentibus, 1.25 ad 2 mm longis, deciduis; infructescentiis racemosis, simplicibus, rarissime depauperato-paniculatis, pubescentibus, 4.5 ad 9 cm longis; bracteis ovatis, acutis, pubescentibus, 0.25 ad 0.5 mm longis; fructibus rubris, ellipsoideis, inaequilateralibus, glabris, rugosis, 3.25 ad 3.5 mm longis, 1.75 ad 2 mm diametro, stigmatibus terminalibus, calycibus 4-meris; pedicellis tenuibus, pubescentibus, 1.75 ad 2 mm longis.

A shrub about 2 m high; the branches slender, terete, smooth, the branchlets pubescent. Leaves lanceolate, membranaceous, 7 to 11.5 cm long, 1.7 to 3 cm wide, olivaceous, shining on both surfaces, glabrous above, sparsely pubescent on the nerves beneath, long and slenderly caudate-acuminate, base acute; lateral nerves 7 or 8 on each side of the midrib, slender, the reticulations somewhat obscure; petioles short, slender, 2 to 3 mm long; stipules linear, pubescent, 1.25 to 2 mm long, up to 0.75 mm wide at the base, deciduous. Infructescences simple, or rarely

with one branch, 4.5 to 9 cm long, slender, pale pubescent; bracteoles ovate, acute, pubescent, 0.25 to 0.5 mm long; calyx teeth 4, ovate, recurved. Fruits reddish, ellipsoid, inequilateral, somewhat compressed, glabrous, somewhat rugose when dry, 3.25 to 3.5 mm long, 1.75 to 2 mm in diameter; stigma terminal, arms short, 3 or 4, recurved; the pedicels slender, pubescent, 1.75 to 2 mm long.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45189 Ramos and Edaño, June 9, 1925, in the open and on river flats, altitude about 200 meters.

A species in the group with *Antidesma pentandrum* (Blanco) Merrill. The slender infructescences, the small, ellipsoid, somewhat compressed fruits, the minute ovate bracteoles, the linear, minute, stipules, and the lanceolate, caudate-acuminate leaves are characteristic.

Genus PHYLLANTHUS Linnaeus

PHYLLANTHUS RAMOSII sp. nov.

Frutex glaber, dioicus, ramis teretibus, 4.5 ad 5.5 mm diametro, ramulis numerosis, 22 ad 37 cm longis, 2 ad 2.5 mm diametro, tenuibus; foliis ovatis, chartaceis, tenuiter caudato-acuminatis, basi aequilateraliter acutis ad rotundatis, 7 ad 12 cm longis, 3 ad 5.3 cm latis, nervis primariis utrinque 6 vel 7, tenuibus; floribus ♂ axillaribus, fasciculatis, longissime (1.2 ad 2.6 cm) pedicellatis, pedicellis filiformibus; perianthi segmentis 5, rarissime 6, oblongo-ovatis ad lanceolatis, obtusis, circiter 3 mm longis; staminibus 5, 1.5 ad 1.75 mm longis, filamentis liberis, ad 1 mm longis, antheris oblongis ad oblongo-ovatis, longitudinaliter dehiscentibus.

A glabrous dioecious shrub, about 3 m high; the branches terete, glabrous, pale reddish brown to pale brown, 4.5 to 5.5 mm in diameter, bearing numerous, somewhat crowded, slender branchlets, these 22 to 37 cm long, 2 to 2.5 mm in diameter, each subtended by 2 or 3, cuneate, rigid, acutely acuminate stipule-like bracts, 1.5 to 2.5 mm in length. Leaves numerous, brown, chartaceous, ovate, prominently caudate-acuminate, base equilateral, acute to rounded, 7 to 12 cm long, 3 to 5.3 cm wide; lateral nerves 6 or 7 on each side of the midrib, rather prominent, the reticulations rather lax, upper surface black and shining when dry, lower paler, rather dull; petioles glabrous, 4 to 6 mm long; stipules ovate, acute, slightly concave, about 3 mm long, deciduous. Staminate flowers axillary, fascicled, long-pedi-

cellate, their pedicels very slender, 1.2 to 2.4 cm long; perianth segments 5, very rarely 6, glabrous, membranaceous, subequal, oblong-ovate to lanceolate, obtuse, about 3 mm long, 1 to 2 mm wide; stamens 5, 1.5 to 1.75 mm long, their filaments free, slender, up to 1 mm long, the anthers oblong to oblong-ovoid, laterally longitudinally dehiscent; disk glands free, oblong, 0.2 to 0.25 mm long.

LUZON, Isabela Province, Mount Moises, *Bur. Sci.* 47336 *Ramos and Edaña*, March 4, 1926, along forested streams, altitude about 1,400 meters.

A species remote from any hitherto described from the Philippines. The large, ovate, caudate-acuminate leaves and the long-pedicellate staminate flowers are characteristic.

DAPHNIPHYLLACEÆ

Genus DAPHNIPHYLLUM Blume

DAPHNIPHYLLUM PARVIFOLIUM sp. nov.

Frutex glaber; ramulis subrugosis, teretibus; foliis parvis, oblongo-ellipticis ad oblongo-oblancoatis, coriaceis, 4 ad 9 cm longis, 1 ad 2 cm latis, supra olivaceis ad pallide brunneis, nitidis, glabris, subtus brunneis, minutissime papillois, apice obtusis ad late rotundatis, interdum minute apiculatis, base acutis, nervis primariis utrinque 6 ad 9, distinctis; inflorescentiis 3 axillariibus, pedunculatis, subumbellatis vel corymbosis, 2 ad 4 cm longis, paucifloris; staminibus 5 ad 9, umbellatis, antheris oblongis, erectis, 1 ad 1.5 mm longis, filamentis quam antheris paullo brevioribus; fructibus oblongo-ellipsoideis, 10 ad 12 mm longis, stigmatibus 2, recurvatis, brevissimis, sessilibus; calycibus 0 vel caducis.

A glabrous shrub, 1 to 2 m high, the branches terete, brown, slightly wrinkled, the branchlets smooth, reddish brown. Leaves small, numerous, oblong-elliptic to oblong-oblancoate, 4 to 9 cm long, 1 to 2 cm wide, olivaceous or pale brown, shining, glabrous above, brown to dark brown and minutely papillose beneath, coriaceous, apex obtuse to broadly rounded, sometimes minutely apiculate, base acute; lateral nerves 6 to 9 on each side of the midrib, distinct on both surfaces; petioles reddish brown to dark brown, 0.7 to 2.5 cm long. Male inflorescences axillary, pedunculate, subumbellate or corymbose, 2 to 4 cm long, few-flowered; calyx obsolete; stamens 5 to 9, umbellate, anthers oblong, erect, often minutely apiculate, 1 to 1.5 mm long, fila-

ments slightly shorter than the anthers. Infructescences axillary, 3 to 6 cm long. Fruits oblong-ellipsoid, black, 10 to 12 mm long, 5 to 6 mm in diameter; pericarp somewhat rugose when dry; stigmas 2, recurved, sessile; calyx none or caducous.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45703 (♂), 45725, 45687 (♀) Ramos and Edaña, on slopes in the mossy forest, near the summit, altitude about 2,000 meters.

This is the only small-leaved *Daphniphyllum* known. It is allied to *Daphniphyllum obtusifolium* Merrill, but differs in its smaller leaves, which are minutely papillose beneath, and its oblong-ellipsoid fruits.

CELASTRACEÆ

Genus MICROTROPIS Wallich

MICROTROPIS FASCICULATA sp. nov.

Frutex glaber, circiter 3 m altus; ramulis teretibus, rubro-brunneis; foliis oblongo-ellipticis, subcoriaceis, breviter acuminatis, basi acutis, 21 ad 30 cm longis, 6.5 ad 11 cm latis, nervis primariis utrinque 10 ad 12, tenuibus, distinctis; infructescentiis fasciculatis, caulinis, fructibus oblongis, perspicue acuminatis, rubro-brunneis, laevis, 1.8 ad 2.3 cm longis, 0.8 ad 0.95 cm diametro.

A glabrous shrub about 3 m high, the branchlets smooth, terete, reddish brown, 4 to 7 mm in diameter. Leaves subcoriaceous, when dry olivaceous-green on the upper surface, light brown on the lower surface, shining on both surfaces, oblong-elliptic, apex shortly and subacutely acuminate, base somewhat narrowed, acute, 21 to 30 cm long, 6.5 to 11 cm wide, primary lateral nerves 10 to 12 on each side of the midrib, distant, slender, distinct, anastomosing, the reticulations lax, somewhat obscure; petioles 1.4 to 2.3 cm long. Infructescences fascicled, cauline; the fruits not numerous, brown when fresh, reddish brown when dry, oblong, with prominently acuminate apex, smooth to shallowly grooved, 1.8 to 2.3 cm long, 0.8 to 0.95 cm in diameter; the pedicels very short, up to 2 mm long; calyx 4 to 6 mm in diameter, the sepals ovate, rounded, 1 to 1.5 mm in length.

PANAY, Capiz Province, Hamanay, *Bur. Sci.* 46147 Edaña, October 8, 1925, on forested slopes, at low altitudes.

This species is radically different from the previously described Philippine representatives of the genus in its cauline, fascicled fruits and its oblong-elliptic leaves. Its alliance is probably with *Microtropis wallichiana* Wight, of Ceylon.

SAPINDACEÆ

Genus OTOPHORA Blume

OTOPHORA GRANDIFOLIOLA sp. nov.

Frutex glaber; foliis circiter 65 cm longis, foliolis 6 ad 8, subcoriaceis, oblongo-ellipticis, usque ad 34 cm longis, 10.5 cm latis, nitidis, subacutis, basi cuneatis, nervis primariis utrinque 9 ad 12, perspicuis; stipulis suborbiculari-ovatis, subcoriaceis, inaequilateralibus, usque ad 6 cm longis; inflorescentiis paniculatis, pyramidatis, usque ad 36 cm longis, ramis paucis vel numerosis, inferioribus usque ad 12 cm longis; floribus pedicellatis, 4-meris, sepalis 4 ad 4.5 mm longis; petalis suborbicularis, circiter 3.5 mm longis; fructibus junioribus ellipsoideis, in siccitate rubro-brunneis, circiter 0.8 cm diametro.

A glabrous shrub, 3 to 4 m high. Branches terete, brownish or grayish, lenticellate. Leaves about 65 cm long, the leaflets 6 to 8, subcoriaceous, oblong-elliptic, 26 to 34 cm long, 7 to 10.5 cm wide, or the basal ones sometimes smaller up to 19 cm by 5 cm, subacute, base cuneate, when dry pale or brown above, light brown beneath; primary lateral nerves 9 to 12 on each side of the midrib, prominent, curved, anastomosing, the reticulations prominent on both surfaces; stipules suborbicular-ovate, obtuse, up to 6 cm long, 5 cm wide, similar to the leaves in texture and color, inequilateral; petiolules short, 4 to 8 mm long. Panicles from the upper axils, pyramidal, 23.5 to 36 cm long, the branches few or numerous, spreading, the lower ones up to 12 cm long. Flowers dark reddish brown when dry, the pedicels 5 to 10 mm long, slender. Sepals 4, ovate to suborbicular, obtuse to rounded, 4 to 4.5 mm long, 3 to 4 mm wide, the margins very sparsely minutely denticulate. Petals 4, about 3.5 mm long, 8 mm wide, suborbicular, margins inflexed and ciliate at the base. Stamens 8, 2.75 to 3 mm long; the anthers narrowly oblong, acute, 1.5 to 1.75 mm long, the filaments flattened at the base. Ovary ellipsoid, 2-celled, glabrous; style very short; stigma obsoletely 2-lobed. Fruits (young) ellipsoid, reddish brown when dry, about 0.8 cm in diameter.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 49051 Ramos and Edaña, April 13, 1927, in dry forests at low altitudes.

This species is allied to *Otophora fruticosa* Blume, but is distinguished among other characters by its very large leaflets and stipules.

VITACEÆ

Genus AMPELOCISSUS Planchon

AMPELOCISSUS DOLICHOBOTRYS sp. nov. | *Kalocissus*.

Frutex scandens, glaber, ramis teretibus, ramulis junioribus plus minusve tomentosis; foliis pedatim 5- rariter 3-foliolatis, foliolis membranaceis, oblongis ad ellipticis, 16 ad 24 cm longis, acuminatis, lateralibus basi valde inaequilateralibus, margine distanter repando-dentatis; inflorescentiis elongatis, usque ad 1 m longis, ramis primariis numerosis, distantibus, patulis, 3 ad 6.5 cm longis; floribus 4-meris, partibus junioribus leviter pubescentibus, sessilibus; petalis oblongis, 2.7 ad 3 mm longis, subacutis ad obtusis; fructibus junioribus carnosiss, globoso-ovoidis, circiter 1.2 cm longis.

A scandent shrub, the branches terete, glabrous, the branchlets more or less tomentose with rather long deciduous matted hairs which in age become white. Tendrils 30 to 35 cm long, 1.5 to 2 mm in diameter at the base. Leaves pedately 5-foliolate, rarely 3-foliolate; the petioles 7 to 18 cm long; leaflets membranaceous, acuminate, margins distantly sinuate-toothed above the middle, and sometimes below, the upper surface glabrous and shining, the lower tomentose on the midrib and nerves, the central leaflet elliptic to oblong-obovate, base equilateral acute, 16.5 to 24 cm long, 8 to 11 cm wide, the petiolule tomentose, 3 to 3.5 cm long, the lateral leaflets oblong to elliptic or oblong-obovate, the base very inequilateral, one side acute, the other rounded to semicordate, 17 to 25 cm long, 7.5 to 11 cm wide, the petiolule tomentose, 1.3 to 2.5 cm long, lateral nerves distinct, 6 to 8 on each side of the midrib. Inflorescence very long, the flower-bearing part 53 to 94 cm long, the very long peduncles 48 to 60 cm long; the spiciform primary branches 34 to 54, slender, the axis minutely puberulent, the rachis sparsely tomentose. Flowers 4-merous, sessile, scattered, each subtended by a small triangular bracteole; calyx shallow, minutely puberulent on the outside, shortly lobed, 1.5 to 1.75 mm long, 1.75 to 2 mm in diameter, the lobes somewhat rounded; petals oblong, minutely puberulent outside, dark red, purplish brown when dry, subacute to obtuse, 2.75 to 3 mm long, 1.25 to 1.5 mm wide. Stamens about 2.75 mm long; anthers oblong, about 1 mm long. Ovary ovoid, minutely puberulent. Young fruits very fleshy, glabrous, globose-ovoid, about 1.2 cm long, 1.15 cm in diameter, with a single seed.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47173 *Ramos and Edaña*, March 23, 1926, along forested streams in damp forests, altitude about 600 meters.

A species manifestly allied to *Ampelocissus botrygostachys* Planchon, differing radically in its very long inflorescences.

AMPELOCISSUS TRICHOCCLADA sp. nov. § *Kalocissus*.

Frutex scandens, ramis ramulisque tomentosis, teretibus; foliis 3-foliolatis, foliolis membranaceis, supra glabris vel glabrescentibus, subtus ad costa nervisque dense tomentosis, plerumque oblongis, 19 ad 28 cm longis, 8 ad 13 cm latis, lateralibus valde inaequilateralibus, acute acuminatis, margine distanter sinuatis; inflorescentiis elongatis, usque ad 74 cm longis, pedunculis usque ad 39 cm longis, ramis primariis numerosis, distantibus, patulis, 2 ad 4 cm longis; floribus 4-meris, glabris, sessilibus.

A scandent shrub, conspicuously tomentose except the flowers and the ultimate branches of the inflorescences; the branches terete, densely covered with long, persistent, wooly, matted, cinnamonous hairs which in age become paler. Tendrils up to 48 cm long. Leaves 3-foliolate, the petioles 9 to 12 cm long; leaflets membranaceous, olivaceous-green, acutely acuminate, the margins distantly sinuate-toothed, the young ones more or less pubescent on both surfaces, the older ones sparsely tomentose to glabrescent above, shining, the lower surface tomentose on the midrib, primary nerves, and margins, pubescent on the reticulations; lateral nerves distinct, 9 to 11 on each side of the midrib, the central leaflet usually oblong-elliptic, equilateral, base cuneate, 26 to 28 cm long, 11 to 12.5 cm wide, the petiole densely tomentose, about 1 cm long, the lateral leaflets oblong-ovate, the base very inequilateral, acute, the inner side narrow, the outer one broad, the basal margins forming nearly a right angle, 19 to 25 cm long, 8 to 13 cm wide, the petiolules densely tomentose, 0.3 to 0.5 cm long. Inflorescence long, pendant, the flower-bearing part about 35 cm long, the peduncles 31 to 39 cm long, the axis tomentose; the spiciform primary branches about 45, slender, distant, glabrous, 2 to 4 cm long. Flowers 4-merous, purple, glabrous, sessile, each subtended by a small triangular bracteole. Calyx shortly 4-lobed, about 1.75 mm long, 1.75 mm in diameter, the lobes about 0.5 mm long, somewhat rounded at the apex. Petals oblong, acute to obtuse, about 2.5 mm long. Stamens 4, anthers oblong, about 1.25 mm long, the filaments subulate, about 0.75 mm long. Ovary oblong-ovoid, glabrous.

MINDANAO, Davao Province, Pagdaugan, *Bur. Sci.* 49627 *Ramos and Edaño*, June 12, 1927, on forested slopes, altitude about 700 meters.

A species doubtless allied to the proceeding one, differing essentially in its densely tomentose branches and leaflets, shorter inflorescences, the lateral leaflets acute at the base, and its glabrous flowers.

Genus LEEA Royen

LEEa PYCNANTHA *sp. nov.*

Frutex circiter 1 m altus, glaber; ramis canaliculatis; foliis simplicibus, obovatis, chartaceis ad subcoriaceis, 24 ad 34 cm longis, 12 ad 20 cm latis, brevissime acuminatis, deorsum angustatis, basi abrupte obtusis, margine crenato-denticulatis, nervis lateralibus utrinque 11 ad 14, subtus valde perspicuis; inflorescentiis in axillis superioribus, brevibus, 2.5 ad 4 cm longis; floribus numerosis, confertis, 4-meris, luteis, 5 ad 6 mm longis.

A shrub about 1 m high, glabrous; branches and branchlets deeply furrowed, dark-colored when dry, the ultimate branchlets 6 to 8 mm in diameter. Leaves simple, obovate, chartaceous to subcoriaceous, 24 to 34 cm long, 12 to 20 cm wide, apex very shortly acuminate, base subequally narrowed, abruptly obtuse, margins prominently crenate-denticulate, the teeth minute, often glandular, the upper surface dark brown when dry, the lower much paler and somewhat shining; lateral nerves 11 to 14 on each side of the midrib, very prominent, somewhat ascending, anastomosing close to the margins, the reticulations very distinct; petioles broadly vaginate, 2.5 to 3.5 cm long. Inflorescences in the upper axils, short, 2.5 to 4 cm long. Flowers numerous, crowded, yellow, 5 to 6 mm long; calyx cup-shaped, 3.25 to 3.75 mm long, 3.75 to 4 mm in diameter, the lobes 4, about one-third as long as the tube, triangular, subacute to acute; corolla tube 2 to 2.25 mm long, the lobes 4, fleshy, reflexed, oblong, subacute, 3 to 3.25 mm long; staminal tube united with the corolla, exerted, about 2.5 mm long; anthers 4, about 2 mm long; ovary ovoid; style about 1.75 mm long.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45743 *Ramos and Edaño*, May 24, 1925, on forested slopes, altitude about 1,700 meters.

A species apparently different from all hitherto known Philippine forms with simple leaves. It is distinguished by its large obovate leaves, and short, very much crowded, inflorescences.

TILIACEÆ

A recent partial treatment of this group involves certain changes in nomenclature for some Philippine species. Burret's recent study² adds two genera, *Pentace* and *Althoffia*, to the Philippine list, or three, if we follow him in the segregation of *Micropocos* Linnaeus from *Grewia* Linnaeus. It is of interest to note that of the three additional genera mentioned above *Pentace* is strictly western Malaysian, while *Althoffia* is strictly eastern Malaysian in the distribution of the other known species.

Genus BERRIA Roxburgh

BERRIA CORDIFOLIA (Willdenow) Burret.

Berrya cordifolia (Willdenow) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 606.

This name, based on *Espera cordifolia* Willdenow, is earlier than, and thus replaces, *Berrya ammonilla* Roxburgh. Burret prefers the spelling *Berrya* to Roxburgh's original *Berrya*.

Genus BROWNLOWIA Roxburgh

BROWNLOWIA BECCARI (Masters) Pierre.

Brownlowia beccari (Masters) Pierre; BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 1164.

Burret refers the Philippine material, originally identified by Merrill with *Brownlowia lanceolata* Benthham, to this Bornean species, its range being now Borneo and the Philippines. *Brownlowia lanceolata* Benthham and *B. beccari* Pierre apparently represent very closely allied species, and complete material may indicate that the latter should be reduced to the former.

Genus PENTACE Hasskarl

PENTACE SUBINTEGRA (Merrill) Burret.

Pentace subintegra (Merrill) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 620.

Columbia subintegra MERRILL in Philip. Journ. Sci. 10 (1915) Bot. 323.

This species, originally described from fruiting material, proves to belong in *Pentace*; the genus, otherwise confined to western Malaysia, is new to the Philippines.

²Burret, M., Beiträge zur Kenntnis der Tiliaceen, Notizbl. Bot. Gart. Berlin 9 (1926) 692-880, II op. cit. (1927) 1161-1174.

Genus GREWIA Linnæus

Other than the segregation of *Microcos* Linnæus, as a valid genus (see below), the following proposed changes affect Philippine species:

GREWIA ROLFEI Merrill var. **RIZALENSIS** (Merrill) Burret.

Grewia rolfei Merrill var. *rizalensis* (Merrill) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 647.

Grewia rizalensis Merrill is reduced as a variety of *G. rolfei* Merrill.

GREWIA KOORDERSIANA Burret.

Grewia koordersiana BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 662.

Burret suspects that the Luzon material referred by Merrill to *Grewia asiatica* Linnæus belongs to this Javan species. The discontinuous distribution would seem to militate against the correctness of this view.

GREWIA PARVA Merrill.

Grewia parva Merrill; BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 769.

Burret believes that the Philippine form is specifically distinct from the Indo-China *Grewia bilamellata* Gagnepain to which Merrill reduced it.

GREWIA SETACEOIDES Burret.

Grewia setaceoides BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 679.

LUZON, Bulacan Province, Norzagaray, *Bur. Sci.* 13018 Ramos.

This is described as a new species, based on the above collection, and is allied to *Grewia setacea* Merrill.

GREWIA ACUMINATA Jussieu.

Grewia acuminata Jussieu; BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 699.

Burret retains this as a strictly Javan species closely related to the more widely distributed *Grewia umbellata* Roxburgh and were he correct then Roxburgh's specific name would replace Jussieu's for the Philippine form. Knowing that Jussieu's type was preserved in the Paris Museum we communicated with Dr. F. Gagnepain, asking him to compare the material. On the basis of his own intensive knowledge of the Indo-Malaysian species of *Grewia*, a critical examination of Jussieu's type, and the abundant material from various parts of Malaysia and the Philip-

pines, he wrote under date of February 16, 1928 that he considered that Dr. Hochreutiner was correct in his interpretation of Jussieu's species; and that it was practically impossible to distinguish between *Grewia acuminata* Jussieu and *G. umbellata* Roxburgh. Hochreutiner's No. 37 is true *Grewia acuminata* Jussieu, and Philippine specimens are referable to the same species. Therefore, we retain Jussieu's name for the Philippine form.

Genus MICROCOS Linnaeus

This genus is retained as a valid one distinct from *Grewia* to which all previous modern authors have referred it. Four Philippine species are known.

MICROCOS PYRIFORMIS (Elmer) Burret.

Microcos pyriformis (Elmer) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 772.

Grewia pyriformis ELMER Leaf. Philip. Bot. 8 (1915) 2841.

MINDANAO, Elmer 13996. Endemic.

MICROCOS STYLOCARPA (Warburg) Burret.

Microcos stylocarpa (Warburg) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 780.

Grewia stylocarpa WARBURG in Perkins Frag. Fl. Philip. (1904) 104.

Widely distributed in the Philippines; a variety *longipetiolata* Burret, in Borneo.

MICROCOS PHILIPPINENSIS (Perkins) Burret.

Microcos philippinensis (Perkins) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 781.

Grewia philippinensis PERKINS Frag. Fl. Philip. (1904) 103.

Widely distributed in Luzon. Endemic.

MICROCOS INFLEXA (Merrill) Burret.

Microcos inflexa (Merrill) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 795.

Grewia inflexa MERRILL in Philip. Journ. Sci. 11 (1916) Bot. 194.

SAMAR. Endemic.

Genus COLUMBIA Persoon

Burret prefers the older original name *Colona* as published by Cavanilles, and considers all species under the former generic name. New names of Philippine species are *Colona megacarpa* (Merrill) Burret, page 800; *C. mollis* (Warburg) Burret, page 802; *C. subaequalis* (Planchon) Burret, page 802, with descrip-

tion; *C. lanceolata* (Warburg) Burret, page 804; *C. hirsuta* (Warburg) Burret, page 804 (to this are reduced *Columbia inaequidentata* Warburg and *C. macgregorii* Merrill); *Colona jagori* (Warburg) Burret, page 813; and *C. philippinensis* (Vidal) Burret, page 813.

Genus **ALTHOFFIA** K. Schumann

ALTHOFFIA LANIGERA (Blanco) Burret.

Althoffia lanigera (Blanco) BURRET in Notizbl. Bot. Gart. Berlin 9 (1926) 858.

This is based on *Eroteum lanigerum* Blanco (1837), which in 1918 was transferred to *Trichosporum* as *T. lanigerum* Merrill, replacing *Trichosporum trivalve* Merrill. The genus is new to the Philippines and in distribution is Philippine-eastern Malaysia as contrasted to *Pentace* mentioned above, which is Philippine-western Malaysia. Five species are now known, one in the Philippines, three in New Guinea, and one extending from the Moluccas to the Bismarck Archipelago, New Guinea, and north-eastern Australia.

GUTTIFERÆ

Genus **CALOPHYLLUM** LINNÆUS

CALOPHYLLUM MEGISTANTHUM sp. nov. § *Inophyllum*.

Arbor 6 ad 10 m alta; ramis teretibus glabris, ramulis junioribus subangulatis vel sulcatis cum inflorescentiisque dense ferrugineo-pubescentibus; foliis coriaceis, oblongis ad oblongo-ellipticis, 21 ad 30 cm longis, 7 ad 8.2 cm latis, supra in siccitate pallidis, nitidis, utrinque glabris, brevissime obtuse acuminatis, basi acutis; petiolo 2.5 ad 4 cm longo; inflorescentiis terminalibus et in axillis superioribus, racemosis vel paniculatis, 17 ad 30 cm longis, paucifloris; pedunculis 7.5 ad 12.5 cm longis; floribus permagnis, usque ad 5 cm diametro, albidis; pedicellis 2.3 ad 3.8 cm longis; sepalis 6, binis exterioribus late ovatis, rotundatis, circiter 1 cm longis, interioribus majoribus; petalis 2 ad 2.5 cm longis.

A tree, 6 to 10 m high; the branches stout, terete, glabrous, 5 to 8 mm in diameter, the branchlets somewhat angled or sulcate, reddish brown, ferruginous-pubescent. Leaves coriaceous, oblong to oblong-elliptic, 21 to 30 cm long, 7 to 8.2 cm wide, shortly and obtusely acuminate, base acute, upper surface shining and pale when dry, the lower surface brownish yellow, glabrous on both surfaces; lateral nerves very numerous, very slender, parallel; petioles 2.5 to 4 cm long, glabrous or sparsely pubescent. Inflorescences terminal and in the upper axils, race-

mose or paniculate, the older parts sparsely ferruginous-pubescent, the younger parts densely so, 17 to 30 cm long, including the peduncles, few-flowered; the peduncles 7.5 to 12.5 cm long. Flowers white, large, up to 5 cm in diameter, the lower pedicels up to 3.8 cm long, the upper ones shorter, the uppermost 2.3 cm in length. Sepals 6, the two outer ones coriaceous, pubescent, broadly ovate, about 1 cm long, the inner ones subglabrous to pubescent, suborbicular to oblong-obovate, 1.6 to 2.1 cm long. Petals white, oblong-obovate, rounded, very slightly pubescent, 2 to 2.5 cm long, 1.5 to 1.6 cm wide. Stamens very numerous, yellow. Ovary glabrous, ovoid-globose.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47137 *Ramos and Edaño*, March 15, 1926, in damp forests, altitude about 300 meters.

This species is perhaps allied to *Calophyllum ferrugineum* Merrill, but is strikingly different from that. It is well characterized by its oblong to oblong-elliptic, large, glabrous leaves, with very numerous and very slender nerves; by its unusually large, 6-merous flowers, and by its elongated, few-flowered racemose and paniculate inflorescences.

FLACOURTIACEÆ

Genus CASEARIA Jacquin

CASEARIA PILOSISSIMA sp. nov.

Frutex, ramulis foliisque valde pubescentibus; foliis chartaceis ad subcoriaceis, oblongis, utrinque dense pilosis, usque ad 23 cm longis, 9.5 cm latis, breviter obtuse acuminatis, basi cordatis, inaequilateralibus, margine crenatis, nervis utrinque 7 ad 9, perspicuis; floribus axillaribus, fasciculatis, 5-meris, tenuiter (5 mm) pedicellatis; staminibus aequalibus, filamentis circiter 1.5 mm longis, antheris 0.6 mm longis; fructibus pilosis, ovoideis ad ellipsoideo-ovoideis, circiter 2 cm longis, in siccitate obscure 6-sulcatis, pedicellis usque ad 9 mm longis.

A shrub, very conspicuously pubescent, the branches and branchlets terete, densely pilose. Leaves oblong, chartaceous to subcoriaceous, 15 to 23 cm long, 5.5 to 9.5 cm wide, shortly and obtusely acuminate, the acumen 8 to 11 mm long, the base inequilateral, broad, somewhat cordate, the margins crenate, both surfaces covered with soft yellowish hairs, very densely pubescent beneath; lateral nerves 7 to 9 on each side of the midrib, prominent on both surfaces, somewhat evanescent toward the margins, curved, anastomosing; petioles densely pilose, 5 to

10 mm long. Flowers 5-merous, axillary, fascicled, their pedicels slender, about 5 mm long, densely pubescent. Sepals ovate, acute, densely pubescent outside, glabrous inside, coriaceous, 2.75 to 3 mm long, 1.5 to 1.75 mm wide. Stamens equal; anthers oblong-ovoid, acute, about 0.6 mm long; filaments very slender, pubescent, about 1.5 mm long. Staminodes pubescent, about 1.25 mm long. Ovary ovoid, densely pubescent, narrowed to the short style, stigma capitate. Fruit yellow when fresh, dark brown when dry, pilose, ovoid to ellipsoid-ovoid, mature fruits about 2 cm long, 1.5 cm in diameter, obscurely 6-sulcate when dry. Seeds about 12 in each fruit, smooth, glabrous, light reddish brown, inequilateral, ovoid, acute, 5 to 6 mm long, their pedicels 7 to 9 mm long.

MINDANAO, Davao Province, Galintan, *Bur. Sci.* 43874 Ramos and Edaña, June 5, 1927, on dry forested slopes, altitude about 200 meters.

A species manifestly allied to *Casearia velutina* Blume and *Casearia grewiaefolia* Ventenat, differing in its larger, pubescent fruits and its more-conspicuous and denser indumentum.

BEGONIACEÆ

Genus BEGONIA Linnaeus

BEGONIA CASIGURANENSIS sp. nov. § *Petermannia*.

Herba erecta, pauciramosa, 30 ad 50 cm alta; caulis ramisque pubescentibus, perspicue sulcatis; foliis membranaceis, inaequilateraliter oblongo-obovatis, 7.5 ad 13 cm longis, 4.5 ad 8 cm latis, acutis vel rotundatis, basi oblique obscure subcordatis, margine irregulariter dentatis, subpalmatinerviis, supra glabris, subtus pubescentibus; inflorescentiis ♂ racemosis, terminalibus vel in axillis superioribus, 9.5 ad 20 cm longis; floribus ♂ numerosis, dispersis, perspicue bibracteolatis, segmentis 6.25 ad 7 mm longis, 5.5 ad 6.25 mm latis; staminibus 15-21; floribus ♀ solitariis, rariter binis ad basi inflorescentiis ♂; sepalis 2, 1 ad 1.3 cm longis; capsulis obovatis, rotundatis ad truncatis, basi acutis, 1.7 ad 2.5 cm longis, 1.5 ad 2 cm latis, subaequaliter 3-alatis.

An erect somewhat branched herb, 30 to 50 cm high, the stems up to 1 cm in diameter, prominently sulcate when dry, pubescent with short, appressed, reddish brown hairs. Leaves membranaceous, somewhat inequilateral oblong-obovate to obovate, 7.5 to 13 cm long, 4.5 to 8 cm wide, acute to rounded, base obliquely subcordate, the narrower side acute to narrowly

rounded, the wider rounded and 0.5 to 2.5 cm wide, margins irregularly dentate, sometimes with acute lobes, these lobes never more than 1 cm deep, the upper surface glabrous, somewhat shining, the lower much paler, clothed with short dense reddish brown hairs, particularly on the nerves and reticulations, and the whole surface covered with numerous small whitish dots; nerves 8 to 10, subpalmately arranged, mostly forked, reddish brown, prominent, much darker than the other parts of the lower surface, the reticulations somewhat distinct; petioles pubescent, 0.7 to 1.5 cm long, the lower ones usually longer, up to 3 cm long; stipules oblong, membranaceous, abruptly apiculate-acuminate, reddish brown, pubescent, 1.5 to 2 cm long. Inflorescences in the upper axils or terminal, unbranched, 9.5 to 20 cm long, bearing at the base of the peduncle or at the lowest node of the rachis one or two pistillate flowers or fruits, and above these the racemously arranged, conspicuously bracteolate staminate flowers, the rachis pubescent; staminate flowers white, each subtended by a pair of conspicuous bracteoles, these up to 1.5 cm long, 1.1 cm wide, becoming smaller toward the apex of the inflorescence; pedicels pubescent, up to 1 cm long, slender; sepals 2, oblong-ovate to suborbicular, 7-nerved, 6.25 to 7 mm long, 5.5 to 6.25 mm wide; petals 0; stamens 15 to 21; anthers oblong to oblong-obovoid, 1 to 1.5 mm long, filaments slender, as long as the anthers. Pistillate flowers one or two at the base of the staminate inflorescence; sepals 2, oblong-ovate, 1 to 1.3 cm long, 0.8 to 0.9 cm wide, 7-nerved. Capsules obovate in outline, rounded to truncate, base acute, including the wings 1.7 to 2.5 cm long, 1.5 to 2.1 cm wide, glabrous, subequally 3-winged, the wings in their upper portions 7.5 to 11 mm wide, pedicels 0.8 to 1.2 cm long, slender.

LUZON, Tayabas Province, Casiguran (Cabulig River), *Bur. Sci.* 45277 Ramos and Edaña (type), 45399, May 28, 1925, along streams and in the open places at low altitudes.

In general the leaves somewhat resemble those of *Begonia robinsonii* Merrill, and perhaps this species is allied to the latter. It differs, however, in its elongated, racemose, simple, staminate inflorescences, the latter, together with the prominently bracteolate flowers being the most striking characters of the species.

BEGONIA ISABESENSIS sp. nov. § *Diploclinium*.

Foliis longe petiolatis, membranaceis, 10 ad 14.5 cm longis, 6 ad 10.5 cm latis, late oblique ovatis, acute acuminatis, base inaequilateraliter subcordatis, margine breviter paucilobatis, ir-

regulariter denticulatis, dense ciliatis, supra glabris, subtus ad nervis reticulisque villosis, palmatinerviis; petiolo 12.5 ad 25 cm longo; inflorescentiis longe pedunculatis, paucifloris, pedunculis usque ad 44 cm longis; pedicellis 3 tenuibus; sepalis quam petalis majoribus, rotundato-ovatis ad rotundatis, 12 ad 13.5 mm longis; staminibus circiter 60, liberis; capsulis aliis inclusis in ambitu obovatis, apice truncatis, basi rotundatis, 1.7 ad 2 cm longis, 2.5 ad 3.5 cm latis, valde inaequaliter 3-alatis, alis majoribus usque ad 2.3 cm latis, minoribus vix 1 ad 2 mm latis, angulis superioribus subacutis ad obtusis.

An herb from prostrate rhizomes, these 0.4 to 0.7 cm in diameter. Leaves long-petioled, 10 to 14.5 cm long, 6 to 10.5 cm wide, obliquely broadly ovate, acutely acuminate, base inequilateral, subcordate, rarely obtuse, membranaceous, pale green to olivaceous, glabrous above, sparsely pubescent with light reddish brown hairs beneath, particularly on the nerves and the reticulations, margins with few short angular lobes, the primary ones not more than three, these acute, never more than 1.8 cm deep, margin irregularly denticulate and densely ciliate, base palmately 8-nerved, rarely 5-nerved, the reticulations prominent; petioles long-ciliate when young, becoming glabrous in age, light straw-colored, 12.5 to 25 cm long; stipules light reddish brown, slightly pubescent, oblong-ovate, acuminate, apiculate, 1.7 to 2.5 cm long, 1 to 1.5 cm wide. Inflorescence long-peduncled, dichotomously branched, the primary branches 3.5 to 4.5 cm long, few-flowered, the peduncles glabrous, 32 to 44 cm long, rather stout. Staminate flowers pink and white, their pedicels up to 7 mm long; sepals 2, rounded-ovate to rounded, base subcordate, 12 to 13.5 mm long, 11 to 13 mm wide; petals 2, oblong-ovate to rounded-ovate or rounded, 6 to 7 mm long, 5 to 6 mm wide. Stamens about 60, free; anthers narrowly oblong-obovoid, 1 to 1.5 mm long, equaling or shorter than the filaments. Pistillate flowers as large as the staminate ones. Capsules few, in outline, including the wings, obovate, truncate, base rounded, 1.7 to 2 cm long, 2.5 to 3.5 cm wide, very unequally 3-winged, the wings reticulate, the largest one up to 2.3 cm wide at the top, much longer than the capsule proper and broadly rounded at the base, the next larger one up to 10 mm wide at the top and the smallest one scarcely more than a keel along one face of the capsule, 1 to 2 mm wide at most. Pedicels slender, 3 to 3.5 cm long, angles of the wings subacute to obtuse.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47207 *Ramos and Edaño*, March 14, 1926, on rocks along forested streams, altitude about 400 meters.

A species manifestly allied to *Begonia luzonensis* Warburg, different in its much longer, glabrous peduncles, longer petioles, and larger capsules.

MYRTACEÆ

Genus *EUGENIA* Micheli

EUGENIA TAYABENSIS sp. nov. § *Syzygium*.

Frutex glaber; ramulis tenuibus, junioribus 4-angulatis; foliis parvis, coriaceis, 13 ad 25 mm longis, oblongo-obovatis ad elliptico-obovatis vel obovatis, obtusis ad rotundatis, basi acutis, margine revolutis, subtus disperse conspicue atro-punctatis, nervis obscuris ad obsoletis; inflorescentiis terminalibus, brevibus; floribus 4-meris, parvis, calycis tubo 1.5 ad 1.75 mm longo, breviter dentato; petalis rotundatis, 1 ad 1.25 mm longis; staminibus circiter 44, usque ad 2 mm longis.

A glabrous shrub, the trunk about 10 cm in diameter; branches terete, gray, 4 to 6 mm in diameter, the ultimate branchlets slender, about 1 mm in diameter, 4-angled, the angles sometimes narrowly winged, reddish brown to dark brown. Leaves small, numerous, coriaceous, 13 to 25 mm long, 5 to 15 mm wide, oblong-obovate to elliptic-obovate or obovate, obtuse to rounded, base acute, shining above, the lower surface paler and with scattered conspicuous dark-colored glands, margin revolute; lateral nerves obscure to obsolete; petioles slender, 2 to 3 mm long. Cymes terminal, short, including the flowers and peduncles 1.5 to 3.2 cm long, dichotomous or trichotomous, the peduncles slender, 4 to 8.5 mm long; bracts deciduous. Flowers small, 4-merous, white, mostly in threes or in fives, somewhat crowded, about 2.5 mm long; pedicels 3 to 4.75 mm long; bracteoles narrow, up to 1 mm in length; calyx tube turbinate, 1.5 to 1.75 mm long, 2 to 2.5 mm in diameter, the lobes 4, ovate, 0.5 to 1 mm long; petals 4, orbicular, rounded, 1 to 1.25 mm long. Stamens about 44, up to 2 mm long, inflexed.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45691 *Ramos and Edaño*, June 7, 1925, in the mossy forest, altitude about 2,000 meters.

A species resembling and closely allied to *Eugenia acrophila* C. B. Robinson, differing in its rounded, very obscurely nerved leaves and smaller flowers.

Genus *TRISTANIA* R. Brown*TRISTANIA MICROPHYLLA* sp. nov.

Arbuscula, ramis glabris, teretibus, ramulis junioribus angulatis, parce pubescentibus; foliis numerosis, parvis, coriaceis, 15 ad 31 mm longis, 3.5 ad 10 mm latis, anguste oblongo-lanceolatis ad oblongo-ellipticis, apice attenuatis ad obscure acute acuminatis, basi acutis, margine revolutis, junioribus utrinque pubescentibus, vetustioribus nitidis, utrinque glabris, nervis obscuris ad obsoletis; cymis in axillis superioribus, usque ad 1.6 cm longis, pubescentibus; floribus parvis; calycis tubo turbinato, 5-dentato; petalis orbicularibus, rotundatis, 2 ad 2.25 mm longis; staminibus circiter 18, vix in phalangibus dispositis; capsulis 2.5 ad 3.5 mm longis, pubescentibus.

A small tree about 3 m high, the branches terete, glabrous, light brown, rugose, 5 to 6 mm in diameter, the branchlets glabrous, terete, the ultimate ones 4-angled, the angles obscurely and narrowly winged, appressed-pubescent. Leaves small, numerous, crowded, coriaceous, narrowly oblong-lanceolate to oblong-elliptic, apex attenuate to obscurely and acutely acuminate, base acute, margin revolute, 15 to 31 mm long, 3.5 to 10 mm wide, dark brown, glabrous and shining above, glabrous beneath, the younger ones pubescent on both surfaces; lateral nerves very slender, closely arranged, obscure to obsolete, in cases where a count is possible 20 to 24 on each side of the midrib; petioles 1 to 2.5 mm long. Inflorescences in the upper axils, cymose, including the flowers and peduncles 10 to 16 mm long, densely ferruginous pubescent with appressed hairs, the peduncles slender, 4 to 9.5 mm long; bracts narrowly elliptic, 3.5 to 6 mm long, deciduous. Flowers small, yellow, mostly in threes, 3 to 4 mm long, their pedicels 2 to 3 mm long; bracteoles minute, ovate-lanceolate, acute, 1 to 1.25 mm in length. Calyx tube turbinate, 1 to 1.5 mm long, about 3 mm in diameter, the lobes 5, ovate, subacute to obtuse, 1 to 1.5 mm long. Petals orbicular, rounded, somewhat narrowed at the base, glabrous, 2 to 2.25 mm long, 2 to 2.5 mm wide. Stamens about 18, arranged in one series, although indications of an irregular grouping are evident, 1.75 to 3 mm long. Ovary 3-celled, globose-obovoid, pubescent; style subulate, about 3 mm long, glabrous. Capsules small, dark brown, the valves oblong-ovate, rounded, 2.5 to 3.5 mm long, pubescent with stiff, short hairs.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45618 Ramos and Edaña, May 21, 1925, on slopes in the mossy forest, altitude about 1,700 meters.

This species differs from typical *Tristania* in that the stamens are arranged in a single series, although there are indications of an irregular grouping; they are not arranged in definite phalanges, and the filaments are free. It does not appear to belong to any described section of the genus, yet we are confident that it is correctly placed in *Tristania*, although somewhat anomalous in the arrangement of its stamens. It is further characterized by its numerous, unusually small, elliptic leaves and its short, pubescent inflorescences.

MELASTOMATACEÆ

Genus EISOCREOCHITON novum

Flores 4-meri. Calycis tubus urceolatus vel ovoideus, decidue stellati; limbus subdilatatus, minute 4-lobatus. Petala 4, oblonga, obtusa, glaberrima. Stamina 4, aequalia, filamentis tenuibus, antherae subulatae, incurvae, minute 1-porosae, connectivo infra loculos non producto, incrassato, transverse subcordato, antice breviter biappendiculato, postice 1-appendiculato. Ovarium 4-loculare, vertice puberulum; stylus filiformis; stigmatibus punctiformi. Fructibus ignotis. Frutex scandens, caule elongato, teretiusculo, dense plumoso-stellato. Folia opposita, petiolata, subcoriacea, ovata, parva, integerrima, 5-nervia. Flores parvi vel mediocri, pauci, pedicellati, perspicue bibracteati, in paniculas racemiformes axillares dispositi.

EISOCREOCHITON BRACTEATA sp. nov. Plate 4.

Frutex scandens, partibus junioribus perspicue stellatim plumoso-tomentosus, indumento ferrugineo, ramulis teretibus, gracilibus, 1 ad 1.5 mm diametro; foliis oppositis, ovatis, distincte acuminatis, utrinque viridibus, basi acutis, 3.2 ad 5.5 cm longis, 1.6 ad 3.5 cm latis, supra glabris vel junioribus dense decidue ferrugineo-tomentosis, subtus plumoso-stellatis, vetustioribus glabrescentibus, 5-nerviis, nervis perspicuis, nervulis transversalibus tenuibus; petiolo 1.2 ad 2 cm longo, decidue stellatim plumoso-tomentoso; inflorescentiis paucifloris, pedunculatis, bracteatis, bracteis bracteolisque perspicuis, membranaceis, oblongo-ovatis ad late ovatis, 8 ad 11 mm longis, 4 ad 8 mm latis, bracteolis floribus involucrentibus; calycis tubo 3 ad 4 mm longo; petalis 6.5 ad 7.25 mm longis; antheris circiter 4 mm longis, connectivo basi incrassato, haud producto, transverse subcordato.

A scandent shrub with very hard wood, the branchlets 1 to 1.5 mm in diameter, slender, terete, densely covered with ferruginous plumose-stellate, ultimately deciduous indumentum. Leaves

ovate, distinctly acuminate, base acute, chartaceous to subcoriaceous, 3.2 to 5.5 cm long, 1.6 to 3.5 cm wide, both surfaces green, the lower slightly paler, the upper surface glabrous, the lower surface more or less covered with ferruginous plumose-stellate hairs, which are deciduous in age, the very young leaves densely pubescent on both surfaces, 5-nerved, the longitudinal nerves prominent, the inner pair much more conspicuous than the marginal ones, reaching the apex, the transverse nervules and reticulations slender, distinct; petioles 1.2 to 2 cm long, slender, plumose-stellate-pubescent, the older ones glabrous. Inflorescence racemiform, few-flowered, pedunculate, axillary, conspicuously ferruginous plumose-stellate-pubescent, 4 to 5 cm long, the peduncles 1.6 to 2 cm in length. Flowers 4-merous, pedicellate, bibracteolate, the branches bearing solitary flowers bibracteate, the pedicels (branches) about 10 mm long; bracts and bracteoles membranaceous, pale green, oblong-ovate to broadly ovate, 8 to 11 mm long, 4 to 8 mm wide, more or less concave, the bracteoles more or less inclosing the flowers; calyx tube 3 to 4 mm long, minutely lobed, when young densely stellate-pubescent, soon becoming glabrous; petals 4, white, oblong, obtuse, entire, 6.5 to 7.25 mm long, about 4 mm wide; stamens 4, equal, their filaments slender, about 4 mm long; anthers subulate, curved, attenuate, dehiscing by an apical pore, about 4 mm long, the connective thickened, not produced, transversely cordate, anteriorly shortly 2-appendiculate, posteriorly shortly 1-appendiculate; ovary 4-celled, adhered to the calyx, the apex puberulent; style slender, 8.5 to 8.75 mm long; stigma punctiform.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45610 Ramos and Edaña, May 24, 1925, climbing on trees on forested slopes, altitude about 1,700 meters.

Although in vegetative and inflorescence characters this species closely approximates *Creochiton*, its floral characters are totally different. It seems clearly to fall in the tribe Oxysporeæ, near *Blastus*, although radically different from this genus in its prominently bracteate and bracteolate flowers and its thickened but not produced, transversely cordate, anteriorly biappendiculate and posteriorly 1-appendiculate connectives. The collector notes that the wood is unusually hard and tough.

Genus MEDINILLA Gaudichaud

MEDINILLA MULTIALATA sp. nov. § *Eumedinilla*.

Frutex scandens, epiphyticus, glaber, ramis anguste 8-alatis; foliis verticillatis, brevipetiolatis, late ellipticis ad obovatis,

usque ad 23 cm longis, 12 cm latis, 7-plinerviis, apice abrupte submucronato-acuminatis, basi decurrento-acuminatis; infructescentiis axillaribus, brevibus, pedunculatis, paucifloris; fructibus 5-locellatis, glabris, paucis, obovoideis, truncatis, 1.5 ad 2 cm longis, 1.5 ad 1.75 cm diametro.

A scandent, epiphytic, glabrous shrub, the branches narrowly 8-winged, 8-sulcate, 7 to 8 mm in diameter. Leaves in whorls of 4 at each node, broadly elliptic to obovate, 14 to 23 cm long, 7.5 to 12 cm wide, membranaceous when dry, abruptly submucronate-acuminate, the slender acumen 4 to 8 mm long, the base decurrent-acuminate, 7-plinerved, the upper four lateral nerves prominent, reaching the apex, the external ones slender, somewhat obscure; petioles 5 to 10 mm long. Infructescence peduncled, up to 7.5 cm long, in the axils of fallen leaves, subcymose, the peduncles 1.5 to 5 cm long. Fruits few, dark red, glabrous, 5-celled, pulpy, subumbellate on the few primary branches, obovoid, truncate, 1.5 to 2 cm long, 1.5 to 1.75 cm in diameter, their pedicels 1 to 1.3 cm long.

MINDANAO, Davao Province, Mount Mayo, *Bur. Sci.* 49447 Ramos and Edaña, May 16, 1927, on damp forested slopes, altitude about 1,000 meters.

A species belonging in the group with *Medinilla pterocaula* Blume and *Medinilla crispata* Blume, differing strikingly in its much larger, broadly elliptic to obovate, mucronate, 7-plinerved leaves.

MEDINILLA PYCNANTHA sp. nov. § *Eumedinilla*.

Frutex epiphyticus, ramulis inflorescentisque dense ciliato-villosis, ramis teretibus, glabris, nodis barbatis; foliis oppositis, petiolatis, in paribus distincte inaequalibus, oblongo-ellipticis, 10 ad 19 cm longis, 4.5 ad 7.2 cm latis, utrinque glabris, apice acuminatis, basi subacutis ad acutis, 7-plinerviis, reticulis obsoletis; inflorescentiis terminalibus, 4 ad 7.5 cm longis, cylindricis, pedunculatis, densifloris; floribus 5-meris, calycibus dense setosis, bracteolis conspicuis.

An epiphytic shrub, the branches terete, glabrous, grayish, 3 to 4.5 mm in diameter, bearded at the nodes. Leaves opposite, in distinctly unequal pairs, oblong-elliptic, subcoriaceous, 10 to 19 cm long, 4.5 to 7.2 cm wide, glabrous on both surfaces, or the young ones somewhat pubescent on the nerves beneath, green, shining, shortly acute acuminate, base subacute to acute, 7-plinerved, the reticulations obsolete; petioles glabrous, or the younger ones densely ciliate-villose, 1.5 to 4.5 cm long. Ra-

ceres spikelike, cylindric, very dense, axillary, 4 to 7.5 cm long, 2.4 to 3 cm in diameter, pedunculate, the peduncles densely ciliate-villose, 1.5 to 2.5 cm long; flowers 5-merous; calyx in fruit densely ciliate-setose, cup-shaped, 5 to 7 mm long, 4 to 6 mm in diameter, with 5 minute teeth; pedicels 2 to 3 mm long, densely ciliate-setose; bracts red, more or less ciliate outside and on the margins, glabrous inside, oblong to oblanceolate, 15 to 22 mm long, 4 to 8.5 mm wide, acute.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45580 *Ramos and Edaña*, May 24, 1925, on tree trunks on slopes in the mossy forest, altitude about 1,600 meters.

A species characterized by it dense cylindric inflorescences, and its conspicuously bracteolate flowers, the peduncles, branchlets, and younger petioles being densely ciliate-villose.

MEDINILLA RADICIFLORA sp. nov.

Frutex circiter 2 m altus, ramis ramulisque teretibus, dense pallide stellato-tomentosis; foliis petiolatis, chartaceis, oppositis, late ellipticis, 15 ad 24 cm longis, 8.5 ad 13.5 cm latis, 11- ad 14-plinerviis, acute acuminatis, basi obtusis ad cordulatis, supra glabris, subtus densissime stellato-tomentosis; inflorescentiis e radicibus oriundis, usque ad 16 cm longis, densis, erectis, dichotome multiramosis; floribus 4-meris, pedicellis usque ad 1 cm longis; staminibus 8, inaequalibus; bracteolis conspicuis.

A shrub about 2 m high, the branches and branchlets terete, densely covered with pale stellate-tomentose hairs, the branchlets about 5 mm in diameter. Leaves opposite, broadly elliptic, chartaceous, 15 to 24 cm long, 8.5 to 13.5 cm wide, the younger ones very densely covered on both surfaces with pale stellate-tomentose hairs, the older ones glabrous on the upper surface, olivaceous-green above, pale brownish beneath, acutely acuminate, the base obtuse to slightly cordate, 11- to 14-plinerved, the nerves prominent, curved, ascending, the primary reticulations somewhat distinct; petioles very densely stellate-tomentose, 1 to 3 cm long. Cymes borne on the roots, erect, densely and many-flowered, repeatedly dichotomously branched, 7 to 16 cm long, up to 14 cm wide, shortly peduncled or the glabrous peduncles up to 7 cm in length, the younger parts sparingly stellate-pubescent. Flowers 4-merous, about 1.6 cm long, their pedicels up to 1 cm long, stellate-tomentose, the bracteoles conspicuous, membranaceous, stellate-tomentose outside, lanceolate to oblong-lanceolate, narrowed to the acute apex, base obtuse, 1.2 to 1.5 cm long, about 0.5 cm wide. Calyx urceolate, 4-toothed, stellate-

tomentose outside, 8 to 10 mm long, 4 to 5 mm in diameter, the teeth triangular, acute, 1.25 to 1.5 mm long. Petals 4, purplish, glabrous, obovate, the somewhat rounded apex with one or two minute notches, 10 to 11 mm long, about 8 mm wide at the widest portion. Stamens 8, unequal, the longer ones about 12 mm long, the shorter ones about 10 mm long; anthers of the longer stamens about 7 mm long, of the shorter ones about 6 mm long, both types of anthers slender, slightly curved or nearly straight, lanceolate, acute, the dorsal appendage about 0.5 mm long, the anterior ones subglobose, stout, blunt, about 0.75 mm long.

MINDANAO, Davao Province, Limot (Mount Mayo), *Bur. Sci.* 49544 *Ramos and Edaño*, May 24, 1927, along damp forested streams, altitude about 750 meters.

A species with vegetative characters somewhat resembling those of *Medinilla venosa* Blume, differing very strikingly in its densely flowered, repeatedly dichotomous inflorescences which are borne on the roots.

Bur. Sci. 49044 *Ramos and Edaño*, from Mati, Davao Province, probably represents a form of the same species, differing in its smaller, narrowly elliptic leaves, 10.5 to 20 cm by 5 to 9 cm, with acutely attenuate apices, and its smaller inflorescences, 5 to 8 cm long, which are borne on the trunk.

MEDINILLA SULCATA sp. nov. § *Eumedinilla*.

Frutex scandens, epiphyticus, glaber; ramis ramulisque 8-angulatis, 4 ad 6 mm diametro; foliis verticillatis, oblongo-ellipticis, 6.5 ad 11 cm longis, 3 ad 5.7 cm latis, 5-plinerviis, apice acuminatis, basi acutis; inflorescentiis fasciculatis, breviter pedunculatis vel sessilibus, paucifloris; floribus 6-meris, pedicellis filiformibus, 10 ad 17 mm longis; staminibus 12, inaequalibus.

A scandent, epiphytic, glabrous shrub; the branches and branchlets distinctly 8-angled or sulcate, 4 to 6 mm in diameter. Leaves in whorls of 4 at each node, oblong-elliptic, 6.5 to 11 cm long, 3 to 5.7 cm wide, membranaceous, when dry brittle, fleshy when fresh, glabrous on both surfaces, somewhat rugose beneath, apex acutely acuminate, base acute, 5-plinerved, the external nerves slender and somewhat obscure; petioles purple, 10 to 20 mm long. Flowers 6-merous, axillary or in the axils of fallen leaves, 2 to 5 in a fascicle, the fascicles sometimes on peduncles up to 2 mm long; the bracts and bracteoles deciduous or none; pedicels very slender, 10 to 17 mm in length; calyx cup-shaped, truncate, minutely 6-denticulate, glabrous, 4 to 4.5 mm

in diameter; petals 6, membranaceous, glabrous, oblong-obovate, about 11 mm long, 7.5 mm wide, the apex with a minute apiculum at the notch; stamens 12, unequal, the longer ones about 13 mm long, the shorter ones about 11 mm long; anthers on the longer stamens about 7 mm long, of the shorter ones about 6 mm long, both types of anthers slender, somewhat curved or straight, lanceolate, acute, the dorsal appendage slender, about 0.75 mm long, the anterior ones subglobose, stout, blunt, about 1 mm long.

LUZON, Cagayan Province, Pañablanca, *Bur. Sci.* 46549 Ramos and Edaña, April 2, 1926, on trees, along forested streams, at low altitudes.

A species probably belonging in the group with *Medinilla verticillata* Merrill, differing strikingly in its angled and sulcate branches and branchlets and in its fascicled, slenderly pedicelled flowers.

MEDINILLA WENZELII sp. nov. § *Eumedinilla*.

Frutex epiphyticus, glaber; ramis teretibus, ramulis angulatis, sulcatis; foliis verticillatis, quaternis, coriaceis vel subcoriaceis, obovatis ad elliptico-obovatis, acutis ad obtusis, basi cuneatis, 3-nerviis, 3 ad 5.5 cm longis, 1.5 ad 3 cm latis; inflorescentiis axillaribus, 1-floris, pedunculis bracteatis, bracteis oblongo-ellipticis, 5 ad 7 mm longis; floribus 6-meris; calycibus cupulatis, truncatis, post anthesin usque ad 1 cm longis, extus appendicibus paucis brevibus patulis rigidis instructis.

A glabrous epiphytic shrub; the branches terete, light gray, the branchlets angled and sulcate, slender. Leaves whorled, 4 rarely 3 at each node, coriaceous to subcoriaceous, ovate to elliptic-obovate, acute to obtuse, base cuneate, prominently 3-nerved, 3 to 5.5 cm long, 1.5 to 3 cm wide, reticulations obscure or obsolete; petioles 5 to 12 mm long. Inflorescence axillary, simple, 1-flowered, the peduncle 5 mm long or less, bracteate, the bracts 5 to 7 mm long, oblong-elliptic. Calyx cup-shaped, truncate, in bud about 5 mm long, with scattered, rigid, spreading appendages about 1 mm in length. Petals 6, fleshy, broadly rounded-ovate, somewhat apiculate, in young buds about 6 mm long, 7 mm wide. Stamens 12, subequal; anthers 6 to 6.5 mm long (immature). Fruit cylindric-cup-shaped, truncate, about 1 cm long, the calyx tube truncate, somewhat produced, about 8 mm in diameter.

MINDANAO, Surigao Province, Tubud, Placer, C. A. Wenzel 3021 (type in the herbarium of the University of California),

August 1, 1927, epiphytic on large forest trees at an altitude of about 150 meters.

A curious species, the vegetative characters resembling somewhat those of *Medinilla malindangense* Merrill, strongly characterized by its solitary 6-merous flowers, the calyx tube bearing characteristic, scattered, spreading, rigid appendages about 1 mm in length. By Cogniaux's arrangement of the species it falls in the group with *Medinilla crassinervia* Blume but is remote from all the described species in this assemblage.

Genus MEMECYLON Linnaeus

MEMECYLON AZURINII sp. nov.

Frutex glaber, 1 ad 1.5 m altus; ramis teretibus, laevis, 6 ad 7 mm diametro; ramulis teretibus, minute distanter verrucosis; foliis oblongis, crassissime coriaceis, 21 ad 31 cm longis, 6.5 ad 12 cm latis, apice obtusis ad retusis, basi rotundatis, sessilibus, utrinque glabris nitidisque; nervis lateralibus utrinque circiter 21, tenuibus, subdistinctis, marginalibus aequaliter conspicuis, reticulis obsoletis; infructescentiis terminalibus axillaribusque, pedunculatis, paucifloris, 6 ad 8 cm longis; fructibus globosis, 6 ad 7 mm diametro.

A glabrous shrub, 1 to 1.5 m high; the branches terete, smooth, 6 to 7 mm in diameter; the branchlets terete, reddish brown, minutely and distinctly verrucose. Leaves sessile, oblong, very thickly coriaceous, olivaceous-brown, glabrous and shining on both surfaces, 21 to 31 cm long, 6.5 to 12 cm wide, pinnately nerved, the midrib reddish brown, very prominent; lateral nerves about 21 on each side of the midrib, somewhat obscure, anastomosing with the equally distinct marginal veins, the reticulations obsolete, apex obtuse to retuse, base rounded. Infructescence terminal and axillary, peduncled, 6 to 8 cm long, about as wide, the peduncles and branches subglabrous or slightly pubescent; fruits globose, lilac or red, black when dry, 6 to 7 mm in diameter, their pedicels slender, glabrous, 2 to 3 mm long, subtended by numerous minute bracteoles.

LUZON, Isabela Province, Bagao, *For. Bur.* 29372 *Azurin*, March, 1923 (type in the herbarium of the University of California), in forests, altitude about 100 meters; local name, *casingay* (Negr.); Mount Moises, *Bur. Sci.* 47305 *Ramos and Edaña*, March 4, 1926, along forested streams, altitude about 900 meters.

This species does not closely resemble any previously described form, being remarkably well characterized by its large, sessile, oblong, very thickly coriaceous leaves, which are obtuse to retuse at the apex and rounded at the base, and by its minutely verruculose branchlets.

Genus OSBECKIA Linnæus

OSBECKIA LUZONIENSIS sp. nov. § *Asterostoma*.

Frutex erectus, circiter 1 m altus; ramis viridibus, glabris, subobscurè tetragonis, 3 ad 4.5 mm diametro, ramulis tetragonis, parçissime adpresse strigosis; foliis membranaceis, viridibus, supra disperse adpresse strigosis, subtus ad nervis nervulisque parçissime striolatis, 6.5 ad 12.5 cm longis, 1.5 ad 3 cm latis, lanceolatis, apice tenuiter acute attenuatis, basi acutis, 5-nerviis; floribus paucis, terminalibus, circiter 3.5 cm longis, 3 cm diametro; calycibus ovoideis, viridibus, perspicue dense pedicellatim stellato-setosis, 2 ad 2.5 cm longis, circiter 1.5 cm diametro; petalis 5, violaceis, circiter 2 cm longis, 1.5 cm latis obovatis, rotundatis; staminibus 10, aequalibus, circiter 2 cm longis; antheris lineari-lanceolatis, haud curvatis, circiter 10.5 mm longis.

An erect shrub about 1 m high, the smooth branches subobscurely 4-angled, green, glabrous, 3 to 4.5 mm in diameter, the branchlets sparsely appressed strigose; leaves membranaceous, lanceolate, green, attenuate, apex acutely acuminate, base acute, 6.5 to 12.5 cm long, 1.5 to 3 cm wide, above scattered striolate, beneath on the nerves and veinlets sparingly appressed strigose, 5-nerved, the nerves and reticulations distinct; petioles sparingly appressed strigose, 4 to 9 mm long. Flowers terminal, solitary or in threes, about 3 cm in diameter, their pedicels slender, 1 to 2 cm long; bracts about 9.5 mm long, 5 mm wide, ovate, caudate, ciliate; calyx ovoid, green, 2 to 2.5 cm long, about 1.5 cm in diameter, covered with stalked stellate setæ, the teeth stellately hairy, linear-lanceolate, about 10 mm in length; petals 5, violet, about 2 cm long, 1.5 cm wide, obovate, rounded; stamens 10, equal, the anthers about 10.5 mm long, linear-lanceolate, not curved, with 2 tubercles, the connectives very slightly produced, the filaments about as long as the anthers; ovary ovoid, 5-celled, with 10 short, papery lobes about the apex, and ending in a setose point.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45719 *Ramos and Edaño*, June 6, 1925, a very rare plant in the open places and along streams, at low altitudes.

A species strongly characterized by being nearly smooth, not harsh, sparingly striolate or strigose, and its ovoid, densely stellate-setose calyces, the tufts being conspicuously pedicillate.

MYRSINACEÆ

Genus DISCOCALYX Mez

DISCOCALYX XIPHOPHYLLA sp. nov.

Frutex dioicus, glaber, saltem 1 m altus; foliis numerosis, lineari-lanceolatis, 13 ad 25 cm longis, 0.8 ad 1.5 cm latis, integris, olivaceis, chartaceis, nitidis, utrinque reticulatis, longe acute acuminatis, basi attenuatis, nervis numerosis, subobscuris; inflorescentiis paniculatis, paucifloris, 5 ad 10 cm longis in ramis specialibus lateralibus tenuibus usque ad 20 cm longis dispositis; floribus 3 paucis, 1.25 ad 1.5 mm diametro, tenuiter pedicellatis, sepalis circiter 0.7 mm longis, acuminatis; petalis punctatis, circiter 1.25 mm longis; fructibus circiter 5 mm diametro.

A glabrous dioecious shrub, at least 1 m high, simple or sparingly branched, the branches terete, the branchlets smooth, 2 to 3 mm in diameter. Leaves numerous, pseudovercillately crowded at the top and at the close of a season's growth, linear-lanceolate, 13 to 25 cm long, 0.8 to 1.5 cm wide, entire, chartaceous, olivaceous, shining, glabrous, punctulate on both surfaces, narrowed to the acutely acuminate apex, base attenuate; lateral nerves about 25, slender, distinct but not more prominent than the primary reticulations; petioles thickened, up to 1 cm long. Special lateral branches bearing the inflorescences slender, 15 to 20 cm long, simple or with one or two 1 to 4 cm long branches near the top, sometimes with a few, small, leaflike bracts 1 to 1.8 cm long, on the lower part; branchlets with numerous scars, slightly thickened, bearing one or few very slender, few-flowered, 5 to 10 cm long panicles at or near their apices. Staminate flowers few, reddish, 1.25 to 1.5 mm in diameter, 5-merous, their pedicels very slender, 6 to 8 mm long, subtended by very minute bracteoles; sepals about 0.75 mm long, punctate, oblong, obtuse; petals united below, oblong-obovate, rounded, punctate, about 1.25 mm long; stamens 5, subsessile, anthers oblong, obtuse, about 0.75 mm long. Fruit subglobose, about 5 mm in diameter, when dry brown and with distinct but shallow longitudinal grooves; the punctate persistent sepals ovate-lanceolate, acuminate, 0.75 to 1 mm long.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45678
Ramos and Edaño, June 6, 1925, in forests, altitude about 1,800
meters.

A species probably belonging in the group with *Discocalyx linearifolia* Elmer but totally different in its vegetative and inflorescence characters. It notably differs from *D. angustissima* Merrill in its entire leaves.

Genus MAESA Forskål

MAESA RAMOSII sp. nov. § Eumaesa.

Frutex glaber, circiter 1 m altus, ut videtur erectus; ramulis teretibus, lenticellatis; foliis ovato-lanceolatis, chartaceis ad subcoriaceis, 7.5 ad 10.5 cm longis, 2.4 ad 3.2 cm latis, perspicue acute attenuatis, basi acutis, margine distincte subrepandodontatis; nervis utrinque 5 vel 6, perspicuis; inflorescentiis axillaribus, 1.5 ad 3.3 cm longis, anguste paniculatis; floribus paucis, breviter pedicellatis; sepalis orbiculari-ovatis, rotundatis, integris, haud lineatis, margine ciliatis, circiter 1 mm longis; corolla circiter 2 mm longa, lobis usque ad medium connatis, orbiculari-ovatis, rotundatis, haud lineatis, integris.

A glabrous, apparently erect shrub at least 1 m high, the branches terete, reddish brown to brown, prominently lenticellate. Leaves ovate-lanceolate, firmly chartaceous to subcoriaceous, 7.5 to 10.5 cm long, 2.4 to 3.2 cm wide, the upper surface brownish olivaceous, the lower surface paler, apex prominently and acutely acuminate, base acute, margin distinctly subrepand-dentate; lateral nerves 5 or 6 on each side of the midrib, prominent, curved, ascending, anastomosing; petioles slender, 1.6 to 2.2 cm long. Panicles axillary, glabrous or slightly puberulent, 1.5 to 3.3 cm long; flowers 5-merous, white, not numerous, their pedicels slightly puberulent, about 1 mm long, the bracts spatulate-lanceolate, 2 to 4 mm long, the bracteoles ovate-lanceolate, acute, cymbiform, about 1 mm long; sepals orbicular-ovate, rounded, entire, not lineate, the margins ciliate, about 1 mm long; corolla 5-lobed, about 2 mm long, the lobes connate to the middle, orbicular-ovate, rounded, not lineate, entire; stamens inserted about the middle of the tube, the filaments about twice as long as the anthers.

LUZON, Isabela Province, Mount Moises, *Bur. Sci.* 47272
Ramos and Edaño, March 4, 1926, in forests, altitude about 1,300 meters.

A species allied to *Maesa laxa* Mez, but distinguished by its smaller ovate-lanceolate, conspicuously acuminate leaves and its short, few-flowered inflorescences.

OLEACEÆ

Genus JASMINUM Tournefort

JASMINUM OLIGANTHUM sp. nov. f. *Unifoliolata*.

Frutex scandens, glaber, ramis teretibus, laevis, 2 ad 3 mm diametro; ramulis tenuibus, circiter 1 mm diametro; foliis ovato-lanceolatis, 6 ad 9.5 cm longis, 1.8 ad 3.7 cm latis, subchartaceis, utrinque nitidis, concoloribus, glabris, acute acuminatis, basi acutis, nervis utrinque 5 vel 6, subtus perspicuis, arcuato-anastomosantibus; petiolo breviter parce puberulo, 5 ad 10 mm longo; inflorescentiis terminalibus axillaribusque, paucifloris; floribus 1 ad 3, albidis, 4.5 ad 5 cm longis, longe (2 ad 2.5 cm) pedicellatis; calycis lobis 6, linearibus, acutis, tenuibus, 2 ad 4 mm longis; corollae tubo 1.6 ad 2 cm longo, lobis 9 ad 11, linearibus, 14 ad 17 mm longis, 2 ad 3 mm latis; fructibus globosis ad ellipsoideis, 9 ad 12 mm longis.

A scandent, glabrous or nearly glabrous shrub, the branches terete, smooth, glabrous, 2 to 3 mm in diameter, the branchlets slenderer. Leaves ovate-lanceolate, 6 to 9.5 cm long, 1.8 to 3.7 cm wide, subchartaceous, shining and glabrous on both surfaces, the apex sharply acuminate, base acute; lateral nerves 5 or 6 on each side of the midrib, prominent beneath, ascending, arched-anastomosing, the reticulations lax; petioles minutely puberulent or glabrous, 5 to 10 mm long. Inflorescence terminal and axillary, mostly 3-flowered, the rachis minutely puberulent, slender, the bracts linear-lanceolate, minutely puberulent, 1.5 to 2 mm long; flowers 1 to 3, their pedicels slender, 2 to 2.5 cm long; calyx usually 6-lobed, the tube cylindric, glabrous, the lobes linear, acute, slender, their margins minutely ciliate, 2 to 4 mm long, two sometimes longer than the others; corolla white, the tube slender, 1.6 to 2 cm long, 1 to 1.25 mm in diameter, the lobes 9 to 11, linear, 1.4 to 1.7 cm long, 2 to 3 mm wide. Anthers linear, subsessile, about 5 mm long, the filaments very short. Ovary sparsely pubescent at the apex. Fruits usually simple, sometimes didymous, the carpels globose to ellipsoid, black when dry, 9 to 12 mm long, 7 to 9 mm in diameter, their pedicels slender, 1.5 to 2.5 cm long.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45541 Ramos and Edaña, June 11, 1925, in damp forests, along streams at

low altitudes; Isabela Province, San Mariano, *Bur. Sci.* 46957, 47118 Ramos and Edaña, February 18, 1926, in forests at low altitudes.

A species obviously allied to *Jasminum bifarium* Wallich, and very close to *Jasminum ixoroides* Elmer; distinguished from the latter by its long pedicels and longer corolla lobes.

Genus *LIGUSTRUM* Tournefort

LIGUSTRUM STENOPHYLLUM sp. nov. † Sapdrupacem, Hobuam.

Frutex erectus, ramulis inflorescentisque, exceptis glaber, ramis teretibus, glabris, lenticellatis, pallidis, 1.5 ad 3 mm diametro, ramulis breviter pubescentibus; foliis lanceolatis, 3 ad 8.5 cm longis, 0.7 ad 1.4 cm latis, utrinque attenuatis, subcoriaceis, tenuiter acuminatis, basi cuneatis, nervis lateralibus utrinque 6 vel 7, tenuibus; inflorescentiis pyramidato-paniculatis, 6 ad 9 cm longis, 5 ad 7.5 cm latis, dense pubescentibus, multifloris; floribus albidis, numerosis; calycibus 1.5 ad 2 mm longis, glabris, crenatis; corolla tubo 2 ad 2.5 mm longo, lobis tubo subaequantibus, oblongis, acutis.

A shrub about 3 m high, glabrous except the branchlets and inflorescences, the branches slender, terete, glabrous, pale, lenticellate, 1.5 to 3 mm in diameter, the branchlets shortly pubescent; leaves lanceolate, 3 to 8.5 cm long, 0.7 to 1.4 cm wide, subequally narrowed at both ends, subcoriaceous, the apex slenderly acuminate, base cuneate; lateral nerves 6 or 7 on each side of the midrib, slender; petioles glabrous 3 to 5 mm long. Panicles pyramidal, many-flowered, 6 to 9 cm long, 5 to 7.5 cm wide, densely pubescent; bracts linear, acute, pubescent, the lower ones foliaceous, 5.5 to 11 mm long, 0.75 to 1.5 mm wide; flowers 4-merous, numerous; bracteoles ciliate on the margin, 1 to 2 mm long; pedicels glabrous, or pubescent at the base, 1.5 to 3 mm long; calyx 1.5 to 2 mm long, glabrous, the rounded lobes short; corolla 4.5 to 5 mm long, glabrous, the lobes about as long as the tube, oblong, acute; anthers oblong, about 2 mm long; the filaments longer than the corolla lobes.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 47153 Ramos and Edaña, March 16, 1926; Mount Moises, *Clemens* 16782, April 16 to 23, 1926, along forested streams, altitude about 400 meters.

A species apparently allied to *Ligustrum massalongianum* Visiani, of the Khasia Hills, Assam, India. It differs in its pubescent bracts and ciliate bracteoles, and its flowers having

relatively longer pedicels and filaments. For a recent monograph of *Ligustrum*, see Mansfeld.⁴

Genus *LINOCIERA* Swartz

LINOCIERA CLEMENTIS sp. nov.

Frutex erectus, glaber, ramis 3 ad 5 mm diametro; foliis oblanceolatis, 10 ad 16 cm longis, 1.5 ad 3.3 cm latis, chartaceis ad subcoriaceis, apice acute acuminatis, basi cuneatis, nitidis, subtus perspicue punctulatis, nervis lateralibus tenuibus, subperspicuis; inflorescentiis terminalibus, 7 ad 7.5 cm longis, cymoso-paniculatis; floribus 3 ad 4 mm longis; petalis liberis, 3.5 ad 3.75 mm longis.

An erect, glabrous shrub, the branches 3 to 5 mm in diameter. Leaves oblanceolate, shining, prominently punctulate beneath, apex acutely acuminate, narrowed to the cuneate base, 10 to 16 cm long, 1.5 to 3.3 cm wide, chartaceous to subcoriaceous, the midrib reddish when dry; lateral nerves slender, somewhat prominent on both surfaces, about 10 on each side of the midrib; petioles very short. Inflorescence terminal, cymose-paniculate, 7 to 7.5 cm long, 4.5 to 5 cm wide, glabrous; bracts glabrous, oblong-oblanceolate, 6 to 11.5 mm long, 2 to 4 mm wide. Flowers white, reddish brown when dry, 4-merous, 3 to 4 mm long, the pedicels glabrous, 1 to 2 mm long; bracteoles ovate, 0.75 to 1 mm long; calyx 1.5 to 1.75 mm long, the lobes ovate, acute, sparsely ciliate on the margin, about half as long as the calyx; petals nearly free, linear, acute, 3.5 to 3.75 mm long; ovary oblong-ovoid; style very short or none.

LUZON, Isabela Province, Mount Moises, above Ambabu, *Clemens* 16785 (type), 16784 (with galls), April 15 and 16, 1926. Type in the herbarium of the University of California.

A very characteristic species recognized by its oblanceolate, punctulate leaves.

LINOCIERA SCANDENS sp. nov.

Frutex scandens, glaber, ramis teretibus, laevis, 3 ad 4 mm diametro; foliis ovatis, 4.5 ad 7.5 cm longis, 2 ad 4.3 cm latis, coriaceis, nitidis, minute nigro-puncticulatis, nervis lateralibus obscuris vel obsoletis, acute ad subobtusae acuminatis, basi acutis; petiolo glabro, 10 ad 13 mm longo. Inflorescentiis terminalibus lateralibusque, laxis, 3- vel 4-pinnatim-paniculatis, 8.5 ad 13 cm longis, ramis paucis patulis, inferioribus 4 ad 5 cm longis, floribus ♂ 4-meris, 2 ad 3 mm longis, pedicellis glabris, 2 ad 3 mm

⁴ Engl. Bot. Jahrb. 59 (1924) Beibl. 132: 19.

longis; corolla 2 ad 2.25 mm longa, lobis ad 1.25 mm longis, oblongis, subacutis.

A glabrous woody vine, the branches glabrous, terete, smooth, reddish brown, 2 to 4 mm in diameter, internodes elongated. Leaves ovate, 4.5 to 7.5 cm long, 2 to 4.3 cm wide, coriaceous, glabrous and shining on both surfaces, with numerous minute black dots on both surfaces, pale when dry; lateral nerves obscure or obsolete, apex acutely to subobtusely acuminate, base acute; petioles 10 to 13 mm long. Inflorescence terminal and lateral, 3- or 4-pinnate-paniculate, 8.5 to 13 cm long, the few branches spreading at right angles, the lower ones 4 to 5 cm long, minutely puberulent; bracts lanceolate, acute, minutely puberulent, 1.5 to 3 mm long, the lower ones up to 9 mm long. Flowers green, dark brown when dry, 4-merous, 2 to 3 mm long, the pedicels glabrous, 2 to 3 mm long; bracteoles ovate-lanceolate, acute, minutely puberulent, about 1 mm in length; calyx about 1 mm long, the lobes half as long as the tube, triangular-ovate, acute, glabrous; corolla 2 to 2.25 mm long, the lobes 1 to 1.25 mm long, oblong, subacute, somewhat fleshy; anthers subsessile, 1.5 to 1.75 mm long, erect, oblong, bilobed at the apex, connective very broad.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45740 Ramos and Edaña, May 21, 1925, rare on forested slopes, altitude about 1,700 meters.

A species radically different from any of the other Philippine members of the genus. It is manifestly allied to the Bornean *Linociera macrobotrys* Merrill, differing in its scandent habit and its prominently acuminate leaves and longer petioles.

LOGANIACEÆ

Genus GENIOSTOMA Forster

GENIOSTOMA FASCICULATA sp. nov.

Frutex circiter 2 m altus, inflorescentiis exceptis glaber; foliis chartaceis ad subcoriaceis, oblong-ellipticis, ad lanceolatis, nitidis, in siccitate nigris, 10 ad 15.5 cm longis, 2 ad 4 cm latis, apice acute acuminatis, basi acutis, nervis lateralibus utrinque 6 ad 8, tenuibus, reticulis obsoletis; floribus fasciculato-cymosis, pedicellatis, pubescentibus; corollae tubo circiter 3 mm longo, 3 mm diametro, lobis reflexis, oblongo-ovatis, subacutis, extus minute hirtellis, intus minute glandulosis, 2 ad 2.25 mm longis. Fructibus ellipsoideis vel ovoideo-ellipticis, circiter 7 mm longis, apiculatis.

A shrub about 2 m high, glabrous throughout except the inflorescences, the branches terete, straw-colored, the young branchlets, leaves, petioles, and inflorescences black when dry. Leaves chartaceous to subcoriaceous, oblong-elliptic to lanceolate, shining, apex acutely acuminate, base acute, 10 to 15.5 cm long, 2 to 4 cm wide; lateral nerves 6 to 8 on each side of the midrib, slender, the reticulations obsolete; petioles 1.5 to 2 cm long. Flowers in short axillary, fascicled cymes, up to 15 in each axil, about 3 mm long, their pedicels 3 to 4 mm long, slender; minutely hirtellous bracteolate, bracteoles ovate, up to 2 mm long; sepals ovate, acute, minutely hirtellous externally and on the margins, 1.75 to 2 mm long; corolla tube glabrous outside, minutely glandular within, about 3 mm long, the lobes reflexed, oblong-ovate, subacute, minutely hirtellous outside, minutely glandular inside, 2 to 2.25 mm long. Fruits black, about 7 mm long, 4 mm in diameter, ellipsoid to ovoid-ellipsoid, apiculate, the apiculum up to 1 mm in length, the pedicels about 5 mm long.

LUZON, Nueva Vizcaya, Mount Alzapan, *Bur Sci.* 45629 Ramos and Edaña, May 23, 1925, on forested slopes, altitude about 1,000 meters: Isabela Province, Mount Moises, *Clemens* 16619, April, 1926, flowers greenish white.

In general this species resembles *Geniostoma pachyphyllum* Merrill, which is known from fruiting specimen only, differing in its larger leaves and longer petioles. This species is well characterized further by its short, pubescent, few-flowered fascicled cymes, which are crowded in the axils, and by its apiculate fruits.

APOCYNACEÆ

Genus KOPSIA Blume

KOPSIA TRIANGULARIS sp. nov.

Frutex circiter 3 m altus, bracteis calycibusque exceptis glaber; foliis chartaceis ad subcoriaceis, oblongo-lanceolatis ad oblongo-ellipticis, 9.5 ad 15 cm longis, 2 ad 4.5 cm latis, nitidis, obtuse acuminatis, basi cuneatis, nervis utrinque 14 ad 16, cum reticulis utrinque distinctis; inflorescentiis terminalibus, brevibus, pedunculatis, dichotome ramosis, paucifloris, pedunculo circiter 1.5 cm longo; bracteis late ovatis, acutis, minute ciliatis; calycis lobis oblongis ad oblongo-ovatis, 3.5 ad 4 mm longis; corollae tubo circiter 2.5 cm longo, apice leviter incrassato, intus pubescentibus, lobis oblongo-obovatis, 1.75 ad 2 cm longis, 1 ad 1.2 cm latis, rotundatis. Fructibus compressis, triangularis, striatis, circiter 2.4 cm longis, 1.4 cm latis, rostrato-acuminatis.

A shrub about 3 m high, glabrous throughout except the bracts and calyces. Branches pale, somewhat rugose when dry, about 5 mm in diameter, the ultimate branchlets terete, about 1 mm thick. Leaves chartaceous to subcoriaceous, oblong-lanceolate to oblong-elliptic, 9.5 to 15 cm long, 2 to 4.5 cm wide, grayish olivaceous, shining, narrowed above to obscurely acuminate apex, with a gland at the extreme tip, the base narrowed, cuneate; lateral nerves 14 to 16 on each side of the midrib, slender, ascending, anastomosing with the marginal nerves, distinct on both surfaces, the reticulations very slender, somewhat distinct on both surfaces; petioles very short or almost none, or in the larger leaves up to 6 mm in length. Inflorescence terminal, few-flowered, peduncled, the peduncles about 1.5 cm long, dichotomously branched at their apices. Flowers white, spicately arranged on the short branches, serially falling. Bracts small, broadly ovate, acute, 2.25 to 2.5 mm long, 2 to 2.25 mm wide, imbricate near the apices of the branchlets, somewhat scattered below, somewhat keeled, the margins minutely ciliate. Calyx lobes oblong to oblong-ovate, with a gland on the beak near the top, the margins minutely ciliate, 3.5 to 4 mm long, 2.5 to 3 mm wide. Corolla tube cylindric, glabrous outside, somewhat villose inside, about 2.5 cm long, slightly inflated at the top, the lobes spreading oblong-obovate, rounded, 1.75 to 2 cm long, 1 to 1.2 cm wide. Anthers lanceolate, apiculate, the bases rounded, about 2.25 mm long, the filaments very short. Disk glands subulate, about 1.25 mm long. Carpels glabrous. Fruit compressed, somewhat striate, triangular, about 2.4 cm long, 1.4 cm wide, the dorsal margin straight, the apex rostrate-acuminate, base cuneate.

MINDANAO, Surigao Province, *C. A. Wenzel 2648* (type in the herbarium of the University of California), May 17, 1927, along the shore of Lake Manuel, near Surigao, altitude about 150 meters.

A species apparently allied to *Kopsia turanensis* King and Gamble, differing essentially in its terminal, peduncle inflorescences and larger flowers.

Genus VOACANGA Thouars

VOACANGA DOLICHOCALYX sp. nov.

Frutex circiter 3 m altus, glaber; foliis anguste oblongis ad anguste oblongo-oblancoelatis, breviter acuminatis, acutis ad obtusis, basi angustatis, acutis, 10.5 ad 17 cm longis, 3 ad 5

cm latis, nervis utrinque 8 ad 10; petiolo 1.5 ad 2.3 cm longo, basi subvaginato; inflorescentiis terminalibus axillaribusque, longe pedunculatis, dichotomis, paucifloris; calycis tubo 3 ad 3.6 cm longo, breviter 5-lobato; corolla alba, tubo 3 ad 3.8 cm longo, lobis elliptico-ovatis vel late elliptico-ovatis, 3 ad 3.5 cm longis, 1.6 ad 2 cm latis.

A glabrous shrub about 3 m high; the branchlets somewhat angular when dry, smooth; leaves narrowly oblong to narrowly oblong-oblancoate, 10.5 to 17 cm long, 3 to 5 cm wide, chartaceous, apex shortly and rather abruptly acuminate, the tip acute to obtuse, base narrowed, acute; lateral nerves 8 to 10 on each side of the midrib, distant, slender, distinct, the reticulations obscure to obsolete; petioles 1.5 to 2.3 cm long; the base somewhat sheathing; inflorescence paniculate, terminal and axillary, dichotomously branched; the peduncles 4.2 to 6.5 cm long, the flowers fairly large, white, not crowded at the ends of the branches; calyx 3 to 3.6 cm long, cylindric, the lobes 5, subimbricate, ovate, apex obtuse to rounded, 2 to 3 mm long, glands at the base of the tube within not numerous; corolla tube 3 to 3.8 cm long, the lobes spreading, elliptic-ovate to broadly elliptic-ovate, obtuse to rounded, 3 to 3.5 cm long, 1.6 to 2 cm wide; anthers narrowly lanceolate, acuminate, 5.5 to 5.75 mm long.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45264 Ramos and Edaño, May 5, 1925, in secondary forest, at low altitudes: Ilocos Norte Province, Bangui, *Bur. Sci.* 43584 McGregor, 1923.

A species closely allied to *Voacanga globosa* (Blanco) Merrill, but with much longer calyx tube and somewhat larger flowers.

VOACANGA LATIFOLIA sp. nov.

Frutex circiter 2 m altus, glaber; ramis teretibus junioribus plus minusve sulcatis, laevis, 6 ad 7 mm diametro; foliis oblongo-ellipticis ad oblongo-obovatis, abrupte breviter acute acuminatis, basi acutis, 23 ad 30 cm longis, 9.5 ad 12.5 cm latis, nitidis, subcoriaceis, nervis utrinque 10 ad 12, curvatis, subtus perspicuis; petiolo 2 ad 2.3 cm longo, basi vaginato; inflorescentiis longe pedunculatis, dichotomis, paucifloris; calycis tubo cylindrico, 4 ad 5.5 cm longo, haud profunde 5-lobato, intus ad basi multiglanduloso; corolla alba, tubo 4.5 ad 6 cm longo, lobis late rotundato-ovatis, usque ad 4 cm longis.

A glabrous shrub about 2 m high; the branches terete, the younger ones when dry more or less sulcate, smooth, 6 to 7 mm thick. Leaves oblong-elliptic to oblong-obovate, 23 to 30 cm long, 9.5 to 12.5 cm wide, subcoriaceous, shortly and abruptly

acute-acuminate, base acute, shining on both surfaces; nerves 10 to 12 on each side of the midrib, curved, prominent, the reticulations obscure; petioles 2 to 2.3 cm long, the base inflated. Inflorescence terminal and axillary, dichotomously branched; the peduncles 7 to 9.5 cm long; flowers few, large, white, near the ends of the branches; calyx cylindric, 4 to 5.5 cm long, lobes 5, oblong to narrowly oblong, 4 to 6.5 mm long, the glands at the base of the tube within very numerous; corolla tube 4.5 to 6 cm long, cylindric, somewhat inflated above, the lobes spreading, orbicular to obovate, obtuse to rounded, up to 4 cm in diameter; anthers narrowly lanceolate, acuminate, 9 to 10 mm long.

LUZON, Isabela Province, San Mariano, *Bur Sci.* 47070 *Ramos and Edaña*, February 15, 1926, in damp forest, at low altitudes.

This species resembles *Voacanga megacarpa* Merrill in vegetative characters, but differs in its much longer calyx tube, which is not split nearly to the base, and in its longer anthers.

Genus WILLUGHBEIA Roxburgh

WILLUGHBEIA ELLIPTIFOLIA sp. nov.

Frutex scandens, glaber; foliis subcoriaceis, ellipticis, perspicue acute acuminatis, basi late acutis, 10 ad 17.5 cm longis, 5 ad 10 cm latis, nervis utrinque 13 vel 14; inflorescentiis depauperato-paniculatis, axillaribus et subterminalibus, paucifloris, 4 ad 5 cm longis, floribus glabris, circiter 8 mm longis.

A scandent shrub without tendrils, glabrous throughout, 3 to 5 m high. Branches slender, terete, pale brown, lenticellate, about 5 mm in diameter, the branchlets slender, terete, reddish brown, smooth. Leaves elliptic, 10 to 17.5 cm long, 5 to 10 cm wide, rather abruptly and acutely acuminate, the acumen 1 cm long or less, the base broadly acute, subcoriaceous, pale olivaceous-green to light brown above, paler beneath when dry; lateral nerves 13 or 14 on each side of the midrib, slender, spreading, distinct on both surfaces, the reticulations lax, obscure to obsolete; petioles about 10 mm in length. Inflorescences axillary and subterminal, depauperate-paniculate, few-flowered, 4 to 5 cm long including the peduncles, the peduncles not more than 2 cm long; the bracts small, ovate, subacute or obtuse, the margins minutely ciliate, about 1.5 mm long, the bracteoles similar but smaller. Flowers white and yellow, about 8 mm long, their pedicels about 2 mm long. Calyx about 2 mm in diameter, the tube very short, the lobes broadly ovate, some-

what rounded, the margins minutely ciliate, 1.25 to 1.5 mm long, about 1 mm wide. Corolla tube cylindric, slender, 6 to 7 mm long, slightly inflated in the middle, glabrous outside, slightly pubescent within, the mouth with fleshy, narrowly oblong, about 1-mm long glands or appendages, the lobes overlapping to the left, twisted to the right, oblong, spreading, about 4 mm long, 2 to 2.5 mm wide. Anthers inserted in the middle of the tube, included, ovate-lanceolate, acutely acuminate, the base rounded, about 1.5 mm long. Ovary 1-celled, ovoid, glabrous, about 1.25 mm long. Fruit unknown.

MINDANAO, Surigao Province, Placer, C. A. Wenzel 2605 (type in the herbarium of the University of California), 3108, May and August, 1927, in forests, altitude about 150 meters.

A species in vegetative and floral characters resembling *Willughbeia pauciflora* Merrill, differing in its depauperate-paniculate, glabrous inflorescences.

VERBENACEÆ

Genus *CALLICARPA* Linnaeus

CALLICARPA FACHYCLADA sp. nov.

Frutex circiter 3 m altus; ramulis incrassatis, ramulis et subtus foliis dense tomentosis; foliis eglandulosis, chartaceis ad subcoriaceis, late oblongo-ellipticis, 27 ad 39 cm longis, 14 ad 21 cm latis, undulato-dentatis, apice acute acuminatis, basi acutis, supra glabris, olivaceis, subtus pallidis, dense subplumoso-stellatis, nervis utrinque circiter 10, valde perspicuis; cymis axillaribus, multifloris, dichotomis, densissime plumoso-stellatis, pedunculatis, 6 ad 8 cm longis, 5 ad 10 cm latis; floribus confertis, breviter pedicellatis; calycibus breviter 4-lobatis, circiter 1.75 mm longis; corolla 4-lobata, 3 ad 3.5 mm longa, 2.5 to 3 mm diametro, lobis 1.25 ad 1.5 mm longis, oblongo-ovatis, obtusis; staminibus 4, exertis antheris oblongis, 1.25 ad 1.4 mm longis; fructibus globosis, glabris, 2 ad 2.5 mm diametro.

A shrub about 3 m high; the thickened branchlets and the lower surface of the leaves densely fulvo-tomentose with rather soft, plumose and stellate hairs; branches terete or somewhat compressed at the nodes, pale grayish. Leaves chartaceous to subcoriaceous, broadly oblong-elliptic, 27 to 39 cm long, 14 to 21 cm wide, undulate-dentate, apex acutely acuminate, base acute, the upper surface olivaceous, glabrous, smooth, shining, the lower surface pale, somewhat yellowish, not at all glandular, very densely stellate-plumose-pubescent; lateral nerves about

10 on each side of the midrib, very prominent, the reticulations distinct; petioles densely tomentose, somewhat angled, 4 to 6 cm long. Cymes axillary, many-flowered, dichotomous, very densely tomentose, pedunculate, 6 to 8 cm long, 5 to 10 cm wide. Flowers crowded, their pedicels 0.5 to 1 mm long; calyx membranaceous, cup-shaped, shortly 4-lobed, tomentose, about 1.75 mm long; corolla 4-lobed, 3 to 3.5 mm long, 2.5 to 3 mm in diameter, the lobes 1.25 to 1.5 mm long, about 1 mm wide, oblong-ovate, obtuse. Stamens 4, exerted, the filaments 4 to 4.5 mm long; anthers oblong, 1.25 to 1.4 mm long. Fruit globose, glabrous, 2 to 2.5 mm in diameter, surrounded at the base by the densely fulvo-tomentose calyx; bracts densely fulvo-tomentose, linear, up to 15 mm long, the bracteoles much shorter.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45640 Ramos and Edaña, May 24, 1925, on forested slopes, altitude about 1,600 meters.

A species most closely allied to *Callicarpa magnifolia* Merrill, but with broadly oblong-elliptic, somewhat larger leaves, the margins undulate-dentate and the base acute.

CALLICARPA PLUMOSA sp. nov.

Frutex circiter 2 m altus; indumento ad inflorescentias et ramulis et subtus foliis ad costa nervisque stellato-plumoso, ramulis angulatis; foliis eglandulosis, subcoriaceis, lanceolatis, 21 ad 34 cm longis, 6 ad 10 cm latis, integris, sursum angustatis, perspicue subfalcato-acuminatis, basi acutis, supra glabris, nitidis, viridibus, subtus densissime pallide stellatis, nervis utrinque 9 vel 10, valde perspicuis, curvatis; cymis axillaribus, multifloris, dichotomis, densissime plumoso-stellatis, pedunculatis, 3.5 ad 5.5 cm longis; floribus breviter pedicellatis; calycibus membranaceis, dense plumoso-stellatis, breviter 4-lobatis, 1.5 ad 1.75 mm longis, 1.5 ad 1.75 mm diametro; corolla 3.5 ad 3.75 mm longa, lobis 0.75 mm longis, oblongo-ovatis, subacutis; staminibus 4, exertis, 5.5 ad 6 mm longis; antheris oblongis, circiter 1.25 mm longis; fructibus globosis, glabris, circiter 2.5 mm diametro.

A shrub about 2 m high; the branchlets and the lower surface of the leaves densely stellate-tomentose with rather soft, plumose and stellate hairs; branches terete or somewhat compressed at the nodes, pale grayish, the plumose indumentum castaneous. Leaves subcoriaceous, lanceolate, 21 to 34 cm long, 6 to 10 cm wide, entire, narrowed upward to the more or less falcate apex, acutely acuminate, base acute, the upper surface green, smooth, glabrous, the lower surface densely pale stellate-pubescent, not

at all glandular, the indumentum on the midrib and nerves plumose, more or less castaneous; lateral nerves distant, 9 or 10 on each side of the midrib, very prominent, curved, the reticulations distinct; petioles densely tomentose, 2 to 3 cm long. Cymes axillary, many-flowered, dichotomous, very densely castaneous-plumose-tomentose, pedunculate, 3.5 to 5.5 cm long; flowers somewhat crowded, their pedicels 0.5 to 1 mm long; calyx membranaceous, cup-shaped, shortly 4-lobed, densely stellate-plumose, 1.5 to 1.75 mm long and 1.5 to 1.75 cm in diameter; corolla membranaceous, 4-lobed, 3.5 to 3.75 mm long, the lobes 0.75 mm long, about 1 mm wide, oblong-ovate, subacute; stamens 4, exerted, 5.5 to 6 mm long; anthers oblong, about 1.25 mm long; the filaments very slender; style very slender, about 6 mm long. Fruit globose, glabrous, about 2.5 mm in diameter, surrounded for about two-thirds of its length by the calyx.

LUZON, Isabela Province, San Mariano, *Bur. Sci.* 46928 Ramos and Edaña, March 15, 1926, along forested streams, altitude about 400 meters.

A species characterized by its lanceolate, entire leaves, which are green and glabrous above and densely pale stellate-pubescent beneath, the indumentum on its branchlets, and inflorescences being plumose and castaneous.

Genus CLERODENDRON Linnaeus

CLERODENDRON PUBIFOLIUM *sp. nov.*

Frutex erectus, pubescente; foliis oblongo-ellipticis ad oblongo-ovatis, chartaceis, usque ad 17 cm longis, 8.8 cm latis, apice breviter acute acuminatis, basi late acutis, margine integris, supra sparse, subtus dense pilosis, nervis utrinque 5 ad 7, distinctis, distantibus; inflorescentiis terminalibus, umbellato-paniculatis, pedunculatis, densis, multifloris, dense pilosis, 9 ad 14 cm latis; calycibus cupuliformis, 4 ad 4.5 mm longis, 2.5 ad 3.5 mm diametro, dense pubescentibus, truncatis vel minute 5-denticulatis, basi acutis; corollae tubo tenui, cylindrico, minute puberulo, 15 ad 19 mm longo, lobis minute puberulis, obovatis, subrotundatis, 3 ad 4 mm longis, 2 ad 2.5 mm latis; filamentis usque ad 20 mm longis; fructibus ovoideis, glabris, rotundatis vel truncatis, usque ad 1.5 cm longis, 1 cm diametro.

An erect pubescent shrub. Branches terete, the ultimate branchlets somewhat angled. Leaves chartaceous, oblong-elliptic to oblong-ovate, olivaceous-brown, shining and sparsely pilose

above, brown and densely pilose beneath, 7 to 17 cm long, 3.5 to 8.8 cm wide, apex shortly and acutely acuminate, the base cuneate, the margins entire; lateral nerves 5 to 7 on each side of the midrib, prominent, distant, curved, the reticulations lax; petioles densely pilose, 1.5 to 3.2 cm long. Inflorescence terminal, many-flowered, 9 to 14 cm long, umbellate-paniculate, densely pubescent with short hairs; bracteoles acicular, 2 to 4 mm long; peduncles 2.5 to 4.5 cm long. Calyx cup-shaped or funnel-shaped, 4 to 4.5 mm long, 2.5 to 3.5 mm in diameter, truncate or minutely 5-toothed, narrowed to the acute base, densely pubescent. Corolla tube slender, cylindric, minutely puberulent outside, 15 to 19 mm long, the lobes minutely puberulent outside, obovate to suborbicular, 3 to 4 mm long, 2 to 2.5 mm wide. Filaments long-exserted, filiform, up to 20 mm long. Ovary glabrous. Fruits ovoid, rounded or truncate, red when fresh, black when dry, 1.2 to 1.5 cm long, 0.8 to 1 cm in diameter, the persistent calyx somewhat enlarged, 7 to 9 mm long.

MINDANAO, Davao Province, Mount Mayo, *Bur. Sci.* 49416 *Ramos and Edaño*, April 21, 1927, along streams in secondary forests, altitude about 700 meters.

A species belonging in the group with *Clerodendron sahelangii* Koorders and *C. elliptifolium* Merrill, differing conspicuously by its pubescent leaves and ovoid fruits.

SCROPHULARIACEÆ

Genus TORENIA Linnaeus

TORENIA CORDIFOLIA Roxburgh.

Torenia cordifolia ROXBURGH, *Pl. Corom.* 2 (1798) 52, pl. 161; *Fl. Ind.* 3 (1832) 95; HOOKER in *Curtis Bot. Mag.* 66 (1840) pl. 3715; HOOKER f., *Fl. Brit. Ind.* 4 (1885) 276.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45676 *Ramos and Edaño*, June 6, 1925, in damp open places, altitude about 1,000 meters. India, Java, China.

A species not previously reported from the Philippines. A specimen was sent to Dr. W. A. Hill at Kew for comparison, and he reports:

We have examined the specimen of *Torenia* that you sent us from the Philippines and have not been able to match it precisely with my Chinese species, or with any material from Siam or Malaya in our Herbarium. It approaches *T. cordifolia* Roxb., but I hesitate to identify it with this species from a single specimen.

We have examined all the specimens of this collection, and although we have found slight differences between them and the description and the figure of *Torenia cordifolia* still we hesitate to separate it from Roxburgh's species.

ACANTHACEÆ

Genus HALLIERACANTHA Stapf

HALLIERACANTHA RAMOSII sp. nov.

Herba erecta, ramosa, circiter 1 m alta, partibus junioribus leviter pubescentibus; foliis in paribus subaequalibus, ovato-lanceolatis, acuminatis, basi acutis, utrinque glabris, 7.5 ad 13 cm longis, 2.5 ad 4.5 cm latis, nervis utrinque 6 ad 7, perspicuis, subtus cystolithis paucis instructis; petiolo usque ad 1.3 cm longo; cymis brevissime pedunculatis, paucifloris; bracteis obovato-lanceolatis, 4 ad 6 mm longis; calycis segmentis anguste lanceolatis, subulatis, 7 ad 9.2 mm longis; corolla alba, extus glabra, tubo ampliato, 5 ad 5.5 mm longo, segmentis subaequilongis, superioribus 2-lobatis, inferioribus 3-lobatis; staminibus 2, aequalibus, antheris ellipsoideis, circiter 1 mm longis, filamentis circiter 4 mm longis, tenuibus; capsulis oblanceolatis, glabris, attenuatis, usque ad 9 mm longis.

An erect branched herb about 1 m high, the younger parts sparingly pubescent with short hairs; the branches minutely canaliculate, glabrous or nearly so, usually dark green when dry, the branchlets very slightly pubescent, angular. Leaves of each pair equal or near the tips of the branchlets more or less unequal, ovate-lanceolate, slenderly acuminate, base acute, membranaceous, dark green above, somewhat paler beneath, shining, 7.5 to 13 cm long, 2.5 to 4.5 cm wide, glabrous on both surfaces, with scattered cystoliths on the lower surface only, the margins entire or very obscurely undulate; lateral nerves 6 or 7 on each side of the midrib, prominent; petioles slender, obscurely pubescent, 4 to 13 mm long. Cymes axillary, very shortly peduncled, few-flowered, the peduncles obscurely pubescent, up to 3 mm in length. Bracts obovate-lanceolate, acute to obtuse, slightly pubescent, 4 to 6 mm long. Flowers sessile or subsessile, the pedicels at most 1 mm long. Calyx segments 5, narrowly lanceolate, subulate, 7 to 9.2 mm long, 0.75 to 1 mm wide, obscurely pubescent. Corolla white, glabrous outside, ciliate at the throat inside, 10 to 10.5 mm long, the tube 5 to 5.5 mm long, cylindric and narrowed at the base, then

somewhat inflated, the larger and lower lip 4.5 mm long, about 3.5 mm wide, 3-lobulate, the lobules 1.5 to 2 mm long, oblong-ovate, the central one larger, the upper lip erect, 2-lobulate, the lobules oblong-ovate, 0.5 to 0.75 mm long. Stamens 2, of the same length; the anthers equal, ellipsoid, about 1 mm long, one cell attached slightly above the other; filaments glabrous except the ciliate base, somewhat flattened, about 4 mm long. Pollen oblong-elliptic. Capsules oblanceolate, attenuate, glabrous, 7 to 9 mm long, 2 to 2.5 mm in diameter, the pedicels in fruit up to 1.5 mm long, and the persistent calyx segments up to 11 mm long.

MINDORO, Pinaligpigan, near Puerto Galera, *Bur. Sci.* 46352 Ramos, December 9, 1925, on forested slopes, altitude about 1,000 meters.

A species in the general alliance with *Hallieracantha brevipetiolata* Merrill, from which it is distinguished, among other characters, by the shape of its leaves and bracts, as well as by its very short peduncles and smaller capsules.

RUBIACEÆ

Genus CANTHIUM Lamarck

CANTHIUM OBLONGIFOLIUM sp. nov.

Frutex erectus, inerme, glaber, circiter 4 m altus; ramis ramulisque teretibus, laevis; foliis oblongo-ellipticis, chartaceis, tenuiter acuminatis, 10 ad 15 cm longis, 4.5 ad 7 cm latis, nervis utrinque 5 vel 6, perspicuis, evanescentibus, reticulis laxissimis vel obsoletis; fructibus axillaribus, tenuiter pedicellatis, solitariis, oblongo-obovoideis, 1.5 ad 2 cm longis, in siccitate leviter longitudinaliter sulcatis, pedicellis filiformibus, 1 ad 1.5 cm longis.

A glabrous, erect, unarmed shrub about 4 m high, the branches and branchlets terete, slender, smooth, pale brown. Leaves oblong-elliptic, chartaceous, 10 to 15 cm long, 4.5 to 7 cm wide, apex slenderly and sharply acuminate, base somewhat decurrent-acuminate, the upper surface smooth and shining, olivaceous-brown when dry, the lower surface paler; lateral nerves 5 or 6 on each side of the midrib, prominent, distant, curved, scarcely or very faintly anastomosing, usually evanescent before reaching the margins, the reticulations very lax, often obsolete; petioles 6 to 10 mm long; stipules triangular, slenderly acuminate, 3 to 4 mm long. Fruits axillary, solitary, long-pedicelled, oblong-

obovoid, yellow when fresh, dark reddish brown when dry, apex rounded, narrowed toward the base, when dry 1.5 to 2 cm long, the pedicels slender, 1 to 1.5 cm long.

PANAY, Capiz Province, Haman-ay, *Bur. Sci.* 46109 *Ramos and Edaño*, October 13, 1925, on forested slopes at low altitudes.

A species apparently allied to *Canthium paucinervium* Merrill, differing in its larger, solitary, oblong-obovoid, long-pedicelled fruits.

CANTHIUM TRICHOPHORUM sp. nov.

Frutex inerme, erectus, perspicue disperse ciliatus; foliis ellipticis, chartaceis, tenuiter acuminatis, basi acutis, 8 ad 16.5 cm longis, 3.5 ad 7.2 cm latis, utrinque disperse ciliatis, nervis utrinque 5 vel 6, perspicuis; fructibus axillaribus, pedicellatis, solitariis, obovoideis, disperse ciliatis, apice truncatis, basi attenuatis, 1.5 ad 2 cm longis, pedicellis villosis, tenuis, 10 ad 15 mm longis, bibracteatis.

An erect, unarmed, prominently ciliate shrub, the branches and branchlets brownish to yellowish brown, slender, terete, ciliate, the branchlets about 2 mm in diameter. Leaves chartaceous, elliptic, 8 to 16.5 cm long, 3.5 to 7.2 cm wide, slenderly and sharply acuminate, base acute, ciliate on both surfaces with long scattered hairs, the upper surface dark brown, shining, the lower surface paler; lateral nerves 5 or 6 on each side of the midrib, very prominent, faintly anastomosing, curved, the reticulations obsolete; petioles densely ciliate, 5 to 9 mm long; stipules ciliate, subulate, 10 to 12 mm long. Fruits axillary, solitary, long-pedicelled, ciliate, obovoid, 1.5 to 2 cm long, longitudinally sulcate, apex rounded-truncate, narrowed to the sub-acute base, the pedicels slender, 10 to 15 mm long, ciliate, each with a pair of ciliate, narrowly ovate, 2 to 3 mm long bracts.

LUZON, Isabela Province, San Mariano (Ambulawan), *Bur. Sci.* 46759 *Ramos and Edaño* (type), March 16, 1926, along forested streams, altitude about 400 meters; Mount Moises, *Bur. Sci.* 47286 *Ramos and Edaño*, March 4, 1926, along forested streams, altitude about 900 meters, *Clemens* 17003, 17003a, April, 1926.

A characteristic species, distinguished by its ciliate, terete branches and branchlets, its elliptic, ciliate, slenderly and sharply acuminate leaves, and its long-pedicelled, ciliate, solitary, obovoid, sulcate fruits. Its alliance is perhaps with *Canthium ellipticum* Merrill.

Genus HEDYOTIS Linnaeus

HEDYOTIS CARDIOPHYLLA sp. nov. † *Diplophragma*.

Frutex scandens; ramulis glabris, teretibus, leavis circiter 3 mm diametro, junioribus obscure angulatis; foliis chartaceis, glabris, fragilis, ovatis, longe tenuiter acuminatis, basi late rotundato-cordatis, 5 ad 8 cm longis, 2 ad 3.8 cm latis, nervis utrinque 4 vel 5, tenuibus vel admodum obscuris vel subobsoletis, haud reticulatis, breviter petiolatis; stipulis haud laciniatis, cuspidatis, apiculis 1 ad 2 mm longis; cymis axillaribus, 0.9 ad 2 cm longis, paucifloris, breviter pedunculatis; calycis tubo ovoideo, 1 ad 1.5 mm longo, lobis 4 oblongo-ovatis, 1.5 ad 2 mm longis; corolla parva, alba, circiter 2.75 mm longa, lobis 4, oblongo-ovatis, circiter 1.75 mm longis; fructibus oblongo-obovoides, 3 ad 3.5 mm longis.

A slender scandent shrub, the branches greatly elongated, pale, glabrous, terete, smooth, about 3 mm in diameter, the younger parts much slenderer, slightly but sharply angled. Leaves chartaceous, glabrous, rather pale and brittle when dry, ovate, long and slenderly acuminate, base broadly rounded-cordate, 5 to 8 cm long, 2 to 3.8 cm wide; lateral nerves 4 or 5 on each side of the midrib, slender, sometimes obscure or obsolete beneath, slightly impressed on the upper surface, anastomosing, reticulations obsolete; petioles glabrous, 2 to 4 mm long; stipules entire, minute, broader than long, ovate, cuspidate, 2 to 3 mm long, the apiculum 1 to 2 mm long. Cymes axillary, short, 0.9 to 2 cm long, few-flowered, the peduncles slender, 2 to 6 mm long. Flowers mostly in threes, their pedicels very slender, 2 to 7 mm long; bracts ovate-lanceolate, acute, up to 6 mm long; calyx tube ovoid, 1 to 1.5 mm long, the lobes 4, oblong-ovate, 1.5 to 2 mm long; corolla small, white, about 2.75 mm long, the lobes 4, oblong-ovate, about 1.75 mm long. Capsules glabrous, crustaceous, oblong-obovoid, 3 to 3.75 mm long, the apex not protruding above the calyx teeth; the pedicels 3 to 5 mm long; persistent calyx teeth spinulose on the margin, ovate-lanceolate, about 2 mm long; seeds black, compressed, plano-convex, verruculose, about 1 mm long.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45585 *Ramos and Edaña*, May 22, 1925, on forested slopes, altitude about 1,700 meters.

A species well characterized by its elongated slender branches; its ovate, broadly rounded-cordate, long-acuminate, chartaceous,

obscurely nerved, glabrous leaves; and its few-flowered, short, axillary inflorescences.

HEDYOTIS EDANOH sp. nov. § *Euhedyotis*.

Suffrutex erectus, simplex, circiter 1 m altus, inflorescentibus exceptis glaber; foliis subcoriaceis, lanceolatis, apice longe anguste acuminatis, basi acutis, 11 ad 17.5 cm longis, 1.5 ad 3.2 cm latis, utrinque nitidis, nervis utrinque 5 vel 6, adscendentibus, haud distinctis; stipulis pectinato-lacinatis, 1 ad 1.4 cm longis, segmentis 5 ad 7, subulatis, 3 ad 7 mm longis; inflorescentibus axillaribus, globosis, densis, sessilibus, 1 ad 1.8 cm diametro; floribus numerosis, confertis, sessilibus vel subsessilibus, 6 ad 7 mm longis; bracteolis linearis ad subspatulatis, margine ciliato-hirsutis, 4.5 ad 6.25 mm longis; calycis tubo campanulato, glabro, 2 ad 3 mm longo, lobis 4, plerumque subspatulatis, subacutis, margine et intus ciliato-hirsutis, 3.25 ad 4 mm longis.

An erect unbranched shrub, about 1 m high, glabrous throughout except the somewhat ciliate-hirsute inflorescences, the upper parts of the stem sulcate and angled. Leaves subcoriaceous, lanceolate, apex slenderly long-acuminate, base acute, 11 to 17.5 cm long, 1.5 to 3.2 cm wide, dark brown when dry, the midrib distinct, the lateral nerves 5 or 6 on each side of the midrib, faint, ascending, smooth and shining on both surfaces; petioles 0.5 to 1.8 cm long; stipules 1.2 to 1.4 cm long, glabrous, laciniate-pectinate, the laciniae subulate, 3 to 7 mm long, the inner ones longer. Inflorescence axillary, dense, globose, sessile, 1 to 1.8 cm in diameter. Flowers numerous, sessile or subsessile, crowded, 6 to 7 mm long; bracteoles subtending each flower 4.5 to 6.25 mm long, 1.75 to 2.1 mm wide, linear to subspatulate, subacute, the margins and inside ciliate-hirsute, outside glabrous; calyx tube campanulate, glabrous, 2 to 3 mm long, the lobes 4, usually subspatulate, but sometimes linear, subacute, margins and inside ciliate-hirsute, 3.25 to 4 mm long.

LUZON, Isabela Province, Mount Moises, *Bur. Sci.* 47327 *Ramos and Edaño*, March 1, 1926, on forested slopes near the summit, altitude about 1,250 meters; *Clemens* 17006, 17007, April 16 to 23, 1926.

The alliance of this species is manifestly with *Hedyotis rigida* (Blume) Miquel, from which it is distinguished by its habit, its larger and laciniate-pectinate stipules, its larger inflorescences, and its nearly nerveless leaves. It is distinguished from *Hedyotis simplex* Merrill by its young stems being glabrous, its

leaves with very faint nerves, its stipule characters, and its larger bracteoles.

Genus *IXORA* Linnaeus

IXORA TENELLIFLORA Merrill.

Ixora tenelliflora MERRILL in Philip. Journ. Sci. 29 (1926) 423.

PALAWAN, Buena Vista near Puerto Princesa, *For. Bur.*, 30089 *Cenabre*, September 21, 1925. A tree about 5 m high in forests, with white odorless flowers.

The specimen agrees perfectly with the type, *Castro and Melegrito 1384*, August 1, 1923, from Banguay Island, British North Borneo. The species is new to the Philippines.

Genus *MORINDA* Linnaeus

MORINDA ELLIPTIFOLIA sp. nov.

Frutex scandens, infructescentiis exceptis glaber, ramulis 2 ad 3.5 mm diametro; foliis subcoriaceis, oblongo-ellipticis ad ellipticis, 10.5 ad 16 cm longis, 4.8 ad 8.7 cm latis, apice acute acuminatis, basi late acutis, nervis utrinque circiter 9, distinctis, distantibus; fructibus solitariis vel binis, globosis, minute puberulis, 1.5 ad 2 cm diametro, pedicellis dense minute puberulis, tenuibus, 3 ad 4 cm longis.

A woody vine, glabrous except the infructescences, the branches pale brown and rugose when dry, the ultimate branchlets subterete, 2 to 3.5 mm in diameter. Leaves subcoriaceous, oblong-elliptic to elliptic, 10.5 to 16 cm long, 4.8 to 8.7 cm wide, olivaceous-brown to dark brown and slightly shining when dry, acutely acuminate, the base broadly acute, rarely subrounded; lateral nerves about 9 on each side of the midrib, slender, distant, distinct as are the primary reticulations; petioles black, 10 to 20 mm long; stipules somewhat sheathing, deciduous, 3 to 4 mm long. Fruits terminal, the heads solitary or in pairs, globose, minutely puberulent, 1.5 to 2 cm in diameter, green when fresh, black when dry, their peduncles densely minutely puberulent, rather slender, 3 to 4 cm long, 1 to 1.25 mm in diameter.

MINDANAO, Davao Province, Galintan, *Bur. Sci.* 48909 *Ramos and Edaña*, June 4, 1927, on forested slopes, altitude about 250 meters.

A species belonging in the group with *Morinda coriacea* Merrill, differing by its subcoriaceous, oblong-elliptic to elliptic leaves, longer petioles, minutely puberulent fruits, and its longer, minutely puberulent peduncles.

Genus NEONAUCLEA Merrill

NEONAUCLEA AURICULATA sp. nov.

Arbor parva, distincte pubescentibus; foliis subcoriaceis, lanceolatis ad oblongo-lanceolatis, usque ad 19 cm longis, 4.5 cm latis, sursum angustatis, apice obtusis, basi rotundato-cordatis, lobis subauriculatis, nervis utrinque 16 ad 18, perspicuis; capitulis terminalibus, solitariis ad ternatis, longe pedunculatis, subanthesin 3.5 ad 4.5 cm diametro; floribus ebracteolatis; calycis lobis minute puberulis, circiter 4 mm longis; corollae tubo 7 ad 9 mm longo, glabro vel subglabro.

A tree about 6 m high, the branchlets, petioles, stipules, peduncles, and leaves pubescent. Branches terete, brown, glabrescent. Leaves subcoriaceous, lanceolate to oblong-lanceolate, 10.5 to 19 cm long, 2.5 to 4.5 cm wide, narrowed to the obtuse apex, the base rounded-cordate, the lobes subauriculate, the upper surface brown, shining, sparingly pubescent, the lower surface paler, and more densely pubescent; lateral nerves 16 to 18 on each side of the midrib, prominent, the reticulations distinct; petioles 2 to 7 mm long; stipules oblong-ovate, rounded, about 2 cm long, 0.8 to 0.9 cm wide. Peduncles terminal, 4 to 6 cm long, solitary, in pairs, or in threes, somewhat pubescent. Heads in flower 3.5 to 4.5 cm in diameter, the flowers ebracteolate. Calyx tube minutely and densely puberulent, about 1.5 mm long, the persistent free lobes about 4 mm long. Corolla tube narrowly funnel-shaped, glabrous or minutely puberulent outside, 7 to 9 mm long, pale yellow when fresh, reddish brown when dry, the lobes 5, oblong-ovate, obtuse, about 1.5 mm long. Anthers about 1.25 mm long. Style exserted, up to 1.6 cm long.

MINDANAO, Davao Province, Mati, *Bur. Sci.* 49281 Ramos and Edaño, April 27, 1927, in thickets and second-growth forests at low altitudes.

A species belonging in the group with *Neonauclea angustifolia* (Haviland) Merrill, and well characterized by its pubescent, auriculate-cordate, lanceolate to oblong-lanceolate leaves.

Genus PSYCHOTRIA Linnaeus

PSYCHOTRIA CARINATA sp. nov. § Grumilea.

Frutex erectus, infructescentiis et subtus foliis ad costa nervisque plus minusve castaneo-ciliatis, ramulis teretibus, laevis, glabris; foliis chartaceis, obovatis ad oblongo-ellipticis, breviter late acuminatis, basi acutis, 9 ad 17 cm longis, 4 ad 8 cm latis, supra nitidis, nervis utrinque 11 ad 13, perspicuis; infructes-

centiis brevibus, circiter 2 cm longis, breviter pedunculatis; fructibus paucis, confertis, glabris, obovoideis, sessilibus, perspicue 8-carinatis, 8 ad 10 mm longis; seminibus plano-convexis, perspicue carinatis, albumine ruminato.

An erect shrub, the branches and branchlets terete, smooth, glabrous, infructescences and leaves on the lower surface along the midrib and nerves more or less castaneous-ciliate. Leaves, chartaceous, obovate, to oblong-elliptic, broadly and abruptly acuminate, base acute, 9 to 17 cm long, 4 to 8 cm wide, somewhat reddish brown when dry, the upper surface glabrous, shining; lateral nerves 11 to 13 on each side of the midrib, prominent, slightly curved, anastomosing, the reticulations slender; younger petioles castaneous-ciliate, soon becoming glabrous, 1 to 2.5 cm long; stipules glabrescent, lanceolate, about 2 cm long, 4.5 to 6 mm wide. Infructescences 1.8 to 2.5 cm long, including the short peduncles; the fruits few, crowded, red when mature, black when dry, glabrous, smooth, sessile, obovoid, apex rounded to truncate, base somewhat narrowed, prominently 8-ridged, 8 to 10 mm long; seeds obtuse at both ends, with 3 prominent ridges on the back, the albumen ruminato.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45278 (type) 45518 *Ramos and Edaño*, May and June, 1925, in damp forests along Kabulig and Mamatoc Rivers at low altitudes.

A species apparently belonging in the same group with *Psychotria rizalensis* Merrill, well characterized by its few, sessile, crowded, obovoid, prominently 8-ridged fruits and the obovate to oblong-elliptic leaves which are abruptly and broadly acuminate.

PSYCHOTRIA LONGISSIMA sp. nov. § *Grumifera*.

Frutex erectus, inflorescentiis minutissime puberulis exceptis glaber; ramis teretibus, junioribus leviter compressis; foliis lanceolatis sursum angustatis, acutis ad obtusis, basi cuneatis, coriaceis, 16 ad 26 cm longis, 3.5 ad 6.4 cm latis, utrinque nitidis, nervis utrinque 20 ad 24, valde perspicuis, arcuato-anastomosantibus, reticulis distinctis; petiolo 4 ad 7 cm longo; paniculis 6 ad 8 cm longis, e basi ramosis vel brevissime pedunculatis, minute puberulis; floribus 7.5 ad 9 mm longis, brevissime (1 ad 2 mm) pedicellatis; calycibus minute puberulis, 5 ad 5.5 mm longis; corollae tubo cylindrico, intus dense villosa, 3.5 ad 4 mm longo, lobis oblongo-ovatis, acutis, 2.75 ad 3.25 mm longis; fructibus breviter pedicellatis, obovoideis, 7 ad 8 mm longis, 8-carinatis; seminibus plano-convexis, albumine ruminato.

An erect shrub, glabrous throughout except the minutely puberulent inflorescences, branchlets dark brown, somewhat compressed, 4 to 7 mm in diameter. Leaves coriaceous, lanceolate, narrowed upward to the acute or obtuse apex, base cuneate, 16 to 26 cm long, 3.5 to 6.4 cm wide, the upper surface olivaceous-brown, smooth and shining, the lower surface a little paler than the upper, somewhat shining; lateral nerves 20 to 24 on each side of the midrib, very prominent, prominently arched-anastomosing, the reticulations distinct on both surfaces; petioles 4 to 7 cm long. Panicles sessile or subsessile, 6 to 8 cm long, with one longer central branch and two shorter lateral basal ones, few-flowered, minutely puberulent. Flowers white, shortly pedicellate, 7.5 to 9 mm long, their pedicels minutely puberulent, 1 to 2 mm long; calyx minutely puberulent, 5 to 5.5 mm long, 3 to 4 mm in diameter, the teeth minute; corolla tube cylindric, densely villose within, 3.5 to 4 mm long, the lobes oblong-ovate, acute, 2.75 to 3.25 mm long. Fruits shortly pedicellate, brown to dark brown when dry, obovoid, apex rounded to truncate, base narrowed, 7 to 8 mm long, with 8 or 9 ridges or keels. Seeds plano-convex, albumen ruminant.

LUZON, Tayabas Province, Mount Alzapan, *Bur. Sci.* 45681 Ramos and Edaña, June 7, 1925, rare on forested slopes, altitude about 1,300 meters.

A distinct species, strongly characterized by its very prominently nerved, elongated, lanceolate, coriaceous, long-petioled leaves, and the minutely puberulent inflorescences.

Genus VILLARIA Rolfe

VILLARIA FASCICULIFLORA sp. nov.

Frutex circiter 2 m altus, floribus exceptis glaber; ramis ramulisque teretibus, laevis; foliis coriaceis, oblongo-ellipticis, perspicue acuminatis, basi acutis, 16 ad 23 cm longis, 5 ad 7 cm latis, nervis utrinque 12 ad 13, perspicuis, distantibus; petiolo 0.8 ad 1 cm longo; stipulis coriaceis, glabris, oblongo-ovatis, obtusis, 1.5 ad 1.8 cm longis; cymis fasciculiformis, brevissime (1.5 ad 3 mm) pedunculatis, axillaribus, floribus confertis, usque ad 11 mm longis, subsessilibus; pedicellis usque ad 1.5 mm longis; calycis tubo cupuliforme, usque 1.5 mm longo extus glabro, intus ciliato-piloso, lobis 5, late ovatis, rotundatis, 1.5 ad 2 mm longis, corolla alba, usque ad 1 cm longa, tubo subcylindraceo, usque ad 5 mm longo, extus glabro, intus pubescente, lobis 5, erectis, subrotundatis, circiter 3.5 mm longis.

A shrub about 2 m high, glabrous throughout except the flowers; the branches and branchlets terete, smooth, dark brown, the former 4 to 5 mm in diameter. Leaves coriaceous, oblong-elliptic, prominently acuminate, base acute, 16 to 23.5 cm long, 5 to 7 cm wide, pale brown above, reddish brown beneath, somewhat shining on both surfaces; lateral nerves 12 to 13 on each side of the midrib, distant, prominent, becoming faint toward the margins, much darker than the blade, anastomosing, the reticulations somewhat obscure; petiole rather short, 8 to 10 mm long; stipules coriaceous, glabrous, shining, 15 to 18 mm long, 5 to 8 mm wide, oblong-ovate, obtuse. Cymes fasciculiform, very shortly (1.5 to 3 mm) peduncled, axillary. Flowers crowded, 10 to 11 mm long, subsessile, the bracteoles 2, ovate, acute, 3 to 3.5 mm long, glabrous outside, ciliate-pilose inside and on the margins. Calyx tube cup-shaped, glabrous outside, ciliate-pilose inside, 1 to 1.5 mm long, 3 to 4 mm in diameter; lobes 5, broadly ovate, rounded, 1.5 to 2 mm long, 2.75 to 3 mm wide, glabrous outside, ciliate-pilose inside and on the margins. Corolla white, 8.7 to 10 mm long, the tube subcylindric, 4.7 to 5 mm long, 4 to 4.5 mm in diameter, glabrous outside, ciliate-pilose inside especially at the throat; the lobes 5, erect, subrounded, glabrous on both surfaces, the margins ciliate, 3 to 3.5 mm long. Anthers 5, sessile, linear, about 4 mm long. Ovary 1-celled. Style somewhat flattened, glabrous, about 2 mm long. Stigma oblong, densely pilose, about 5 mm long, 2 mm in diameter.

LUZON, Isabela Province, San Mariano (Debuluan), *Bur. Sci.* 46775 *Ramos and Edaña*, March 25, 1926, along forested streams, altitude about 700 meters.

A very striking species not closely allied to any of the known Philippine forms. It is well characterized by its fasciclelike, very shortly peduncled cymes, and subsessile flowers. It resembles *Hypobathrum*, but apparently does not belong to that genus.

Genus WILLIAMSLIA Merrill

WILLIAMSLIA PUBESCENS sp. nov.

Frutex dioicus, circiter 1 m altus, ramis teretibus, perspicue pubescentibus; foliis membranaceis, 8 ad 15 cm longis, 1.4 ad 3.5 cm latis, oblongis ad oblongo-lanceolatis, tenuiter attenuato-acuminatis, basi acutis, utrinque ciliato-pubescentibus, nervis utrinque 10 ad 12, perspicuis curvato-arcuatis, reticulis subobscuris; floribus axillaribus, solitariis, sessilibus vel brevissimè pedicellatis; involucris superioribus inaequaliter profunde

4-lobatis, lobis minoribus subulatis, circiter 6 mm longis, 0.75 mm latis, majoribus ovato-lanceolatis, 5 ad 6 mm longis, circiter 3.5 mm latis, apice bilobulatis, lobis majoribus involucris inferioribus anguste lanceolatis, attenuatis, circiter 5 mm longis, minoribus ovatis, acutis, circiter 3.5 mm longis, 2 mm latis; calycibus membranaceis, dense ciliato-villosis, 3 ad 3.5 mm diametro, lobis 4, anguste lanceolatis, attenuatis, usque ad 10 mm longis, 2 mm latis, dense ciliato-villosis; corolla coriacea, 6-lobata, rigida, tubo circiter 1.5 mm longo, leviter pubescente, lobis ovatis, acutis, circiter 1 mm longis; fructibus globosis, dense ciliatis, circiter 10 mm diametro, 6-locellatis, breviter pedicellatis, pedicellus usque ad 2 mm longis.

A dioecious shrub about 1 m high, conspicuously ciliate-pubescent except the glabrous older branches, the branches terete, pale, the branchlets 1.5 to 3 mm in diameter. Leaves membranaceous, 8 to 15.2 cm long, 1.4 to 3.5 cm wide, oblong to oblong-lanceolate, slenderly attenuate-acuminate, base acute, densely ciliate-pubescent on both surfaces; lateral nerves 10 to 12 on each side of the midrib, prominent on the lower surface, curved-ascending, the reticulations somewhat obscure; petioles densely pubescent, 0.5 to 1 cm long; stipules narrowly lanceolate, attenuate, membranaceous, densely pubescent outside, glabrous inside, 2 to 2.8 cm long, 2.5 to 5 mm wide. Flowers axillary, solitary, sessile or very shortly pedicellate; involucre densely ciliate-pubescent, the upper inner one unequally and deeply 4-lobed, the outer lobes subulate, about 6 mm long, 0.75 mm wide, the inner and larger ones ovate-lanceolate, 5 to 6 mm long, about 3.5 mm wide, the apex usually bilobulate, the lobules acute, up to 1.5 mm long, the outer involucre smaller and subequally deeply 4-lobed, the outer lobes narrowly lanceolate, attenuate, about 5 mm long, 1 mm wide, the inner lobes entire, acute about 3.5 mm long, 2 mm wide. Calyx membranaceous, the tube cup-shaped, densely ciliate-villose, about 3 mm long, 3 to 3.5 mm in diameter; the lobes 4, long, densely ciliate-villose, narrowly lanceolate, attenuate, subequal, 9 to 10 mm long, 1.5 to 2 mm wide. Corolla thickly coriaceous, firm, the tube about 1.5 mm long, somewhat pubescent, the lobes 6, ovate, acute, about 1 mm long, densely pubescent particularly at the apex. Fruits shortly pedicellate, globose, densely ciliate, about 10 mm in diameter, 6-celled, crowned by the persistent calyx lobes. In fruit the persistent upper involucre is up to 10 mm long, and the much smaller, lower involucre is up to 5 mm in length.

LUZON, Isabela Province, Mount Moises, *Bur. Sci.* 47275 *Ramos and Edaña*, March 3, 1926; *Clemens* 16852, April 16 to 23, 1926 (description of the flowers was based on this specimen). *Clemens* 17000, April, 1926, on forested slopes, altitude about 1,200 meters.

A species well characterized by being conspicuously ciliate-pubescent throughout, except the older branches, and particularly by the long, persistent, subulate, calyx lobes, and the long-lobed involucre.

WILLIAMSIA TRIFLORA sp. nov.

Frutex circiter 1 m altus; foliis oblongis, 11 ad 16.5 cm longis, 2.3 ad 6 cm latis, acute acuminatis, basi acutis, sparse ciliatis; petiolo 8 ad 15 mm longo; inflorescentiis breviter pedunculatis, 3-floris, pedunculis tenuibus, 3.5 ad 5 mm longis; floribus breviter pedicellatis; calycis tubo cupulato, circiter 2 mm longo, 4 mm diametro, lobis 4, membranaceis, utrinque ciliatis, inaequalibus, oblongo-ovatis vel anguste oblongo-ovatis, 6 ad 8.5 mm longis, 1.75 ad 4 mm latis; corolla alba, coriacea, rigida, apice ciliata excepta glabra, tubo usque ad 1.75 mm longo, lobis oblongo-ovatis, acutis, usque ad 4.5 mm longis, 2 mm latis; ovario 6- vel 7-loculare, globoso; staminibus 6 vel 7, filamentis filiformibus glabris, antheris oblongis, 1 ad 1.25 mm longis.

A shrub about 1 m high, ciliate-pubescent all over except the glabrous older branches, the branches terete, pale. Leaves oblong, acutely acuminate, base acute, 11 to 16.5 cm long, 2.3 to 6 cm wide, sparsely ciliate on both surfaces; lateral nerves 13 or 14 on each side of the midrib, very prominent; petioles 8 to 15 mm long; stipules submembranaceous, lanceolate, 22 to 28 mm long, 5 to 7 mm wide. Inflorescence shortly peduncled, 3-flowered; the peduncles slender, 3.5 to 5 mm long; upper involucre unequally 4-lobed, outer lobes narrowly linear-lanceolate, 6 to 7 mm long, about 1 mm wide, the larger and inner lobes oblong-ovate, subacute, 7 to 8 mm long, 3 to 3.5 mm wide, the basal involucre much smaller, subequally 4-lobed, the outer lobes subulate, 5 to 5.5 mm long, 0.5 to 0.75 mm wide, the inner and smaller lobes narrowly lanceolate, 3.5 to 4 mm long, 1.5 to 2 mm wide. Flowers pedicellate, the pedicels about 3 mm long. Calyx tube cup-shaped, about 2 mm long, 4 mm in diameter, the lobes 4, membranaceous, ciliate on both surfaces, unequal, oblong-ovate or narrowly oblong-ovate, 6 to 8.5 mm long, 1.75 to 4 mm wide. Corolla white, thickly coriaceous, firm, glabrous except the apex ciliate, the tube 0.5 to 1.75 mm long, the

lobes oblong-ovate, acute, 2.5 to 4.5 mm long, 1.5 to 2 mm wide. Ovary 6- or 7-celled, globose, about 1.75 mm in diameter. Style short, up to 0.5 mm in length. Stamens 6 or 7, the filaments short, filiform, glabrous, the anthers oblong, 1 to 1.25 mm in length.

LUZON, Tayabas Province, Casiguran, *Bur. Sci.* 45458 *Ramos and Edaña*, May 5, 1925, along forested streams at low altitudes.

In making the preliminary identifications this material was tentatively referred to *Williamsia pubescens*, which in superficial characters the present species closely resembles. It is distinguished from that species by its 3-flowered, slenderly pedicelled, cymose inflorescences. The leaves are somewhat larger, the petioles are relatively longer, and the flowers are structurally different.

CAMPANULACEÆ

Genus PENTAPHRAGMA Wallich

PENTAPHRAGMA PAUCINERVE sp. nov.

Suffrutex erectus, partibus junioribus plus minusve crispato-pubescente; foliis oblongo-ellipticis, leviter subfalcatis, subacutis, ad breviter obtuseque acuminatis, basi subinaequilateraliter acutis, margine crenulato-denticulatis, 17 ad 21 cm longis, 9 ad 11 cm latis, nervis utrinque 3 ad 4, adscendentibus, supra glabris, olivaceis, nitidis, subtus crispato-pubescentibus, petiolo 3.5 ad 6.5 cm longo; inflorescentiis paucifloris, haud scorpoideis, breviter pedunculatis, 2.5 ad 3 cm longis; floribus 5-meris, sessilibus, 2.5 ad 3 cm longis; corolla campanulata, lobis oblongo-ovatis, breviter acuminatis, 2 ad 3 mm longis.

A suberect or erect undershrub, apparently unbranched, the younger parts more or less pubescent with crisped hairs. Leaves membranaceous, 17 to 21 cm long, 9 to 11 cm wide, slightly curved, oblong-elliptic, subacute to very shortly and obtusely acuminate, base acute, equilateral or slightly inequilateral, margin crenulate-denticulate, olivaceous green and glabrous above, paler and pubescent with crisped hairs beneath; lateral nerves prominent, 3 or 4 on each side of the midrib, ascending; petioles pubescent, 3.5 to 6.5 cm long. Inflorescences nonscorpoid, sessile or shortly peduncled, 2.5 to 3 cm long, few-flowered. Flowers 3 to 7, white and yellow, sessile, 2.3 to 2.5 cm long; bracts oblong-ovate to oblong, membranaceous, pubescent, 2.3 to 2.7 cm long. Calyx somewhat pubescent, cylindric, 1.5 to 1.8 cm long, 3 to 4 mm in diameter, the lobes 5,

unequal, oblong, obtuse, membranaceous, pubescent, 8 to 11 mm long, 3.5 to 5.25 mm wide. Corolla campanulate, 6 to 8 mm long, the lobes oblong-ovate, shortly acuminate, membranaceous, pubescent outside, 2 to 3 mm long.

LUZON, Nueva Vizcaya Province, Mount Alzapan, *Bur. Sci.* 45694 *Ramos and Edaña*, May 22, 1925, on forested slopes, altitude about 1,700 meters.

A species manifestly allied to *Pentaphragma philippinense* Merrill, differing by its oblong-elliptic, few-nerved, shortly acuminate leaves and sessile flowers.

ILLUSTRATIONS

PLATE 1

Pandanus nobilis sp. nov.; a syncarp, reduced.

PLATE 2

Panicum ancylotrichum sp. nov.; 1, habit sketch of the plant, $\times 0.5$; 2, a branch with the inflorescence; 3, part of the main stem; 4, detail of the base of the lamina and a portion of the sheath with the auricles, $\times 4$; 5, a branch of the panicle, showing a spikelet, $\times 10$; 6, the first glume, interior view, $\times 10$; 7, the second glume, interior view, $\times 10$; 8, the third glume, interior view, $\times 10$; 9, the flowering glume, $\times 10$.

PLATE 3

Knema cenabrei sp. nov.; 1, a leaf, $\times 0.8$; 2, a flower, top view, $\times 2$; 3, a flower, side view, $\times 2$; 4, a fascicle of flowers, $\times 1$; 5, the staminal disk, top view, enlarged; 6, the staminal disk, lateral view, enlarged.

PLATE 4

Eisocrechiton bracteata g. et sp. nov.; 1, habit sketch, about $\times 0.8$; 2, a leaf, showing details of venation, $\times 0.8$; 3, a stamen, lateral view, $\times 12$; 4, base of an anther, showing transversely subcordate connective, $\times 12$; 5, a petal, $\times 3.2$; 6, calyx and style, $\times 3.2$.



PLATE I. PANDANUS NOBILIS SP. NOV.



PLATE 2. *Panicum ancylotrichum* SP. NOV.

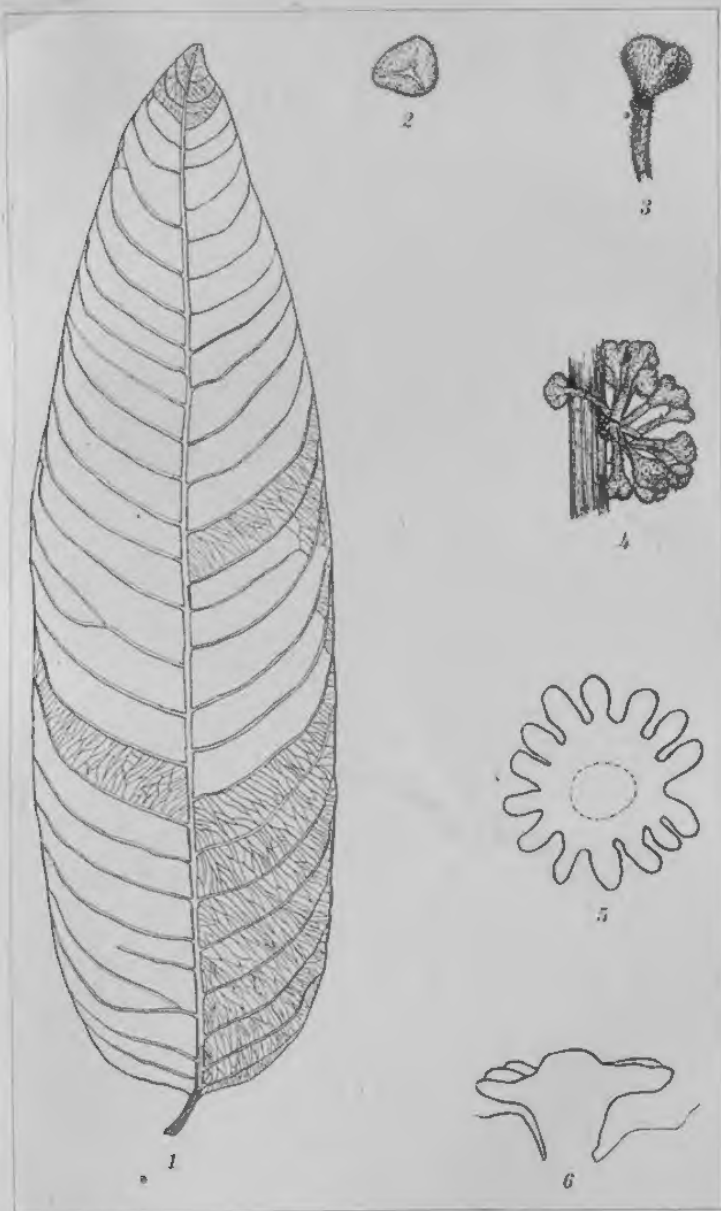


PLATE 3. *KNEMA CENABREI* SP. NOV.



PLATE 4. EISCHRECHITON BRACTEATA G. ET SP. NOV.